

UNIVERSITY OF ZIMBABWE



**An Assessment of Compliance with City Council By-laws Governing Solid Waste
Management among Glenview vendors.**

BY

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Abstract

Solid waste management is a global problem which is affecting most nations and local authorities. Globalisation and urbanization are the main causes of the all the solid waste problems affecting the world. Population growth caused by rural to urban migration is putting dire strain on the city's service providers. Zimbabwe has its fair share of solid waste problems as the service provision has declined tremendously. The situation has been worsened by the growth of street trading in urban centres of the nation. Whilst local authorities are struggling with solid waste management there is need for those managed to comply with given regulation to reduce the effects of solid waste on the environment. Global discourses on the environment push forward the ideas that people should be accountable for the environment they live in and this study focusing on this idea seeks to assess how and why non-compliance is widespread among street vendors in most local authorities. Compliance with city council by-laws is fundamental in upholding sustainable city environments. Theories have been put forward to explain compliance and they focus on sociological, psychological, economic and management factors. This study looked in greater detail at the determinants of compliance. Data collection was done using questionnaires which was a cross cutting tool addressing the attitudes and perceptions of street vendors, the major causes of compliance and an assessment of individual contentment with the state of the environment. Key informant interviews clarified the data and observations were done in the streets where vendors operate from. The findings of the study indicate that most people have no problems with the two by-laws examined but however they expressed dissatisfaction with the type of service provided by the city fathers. They expressed that there was lack of participation, no enforcement of the by-laws, no monitoring among others.

The major causes of compliance or non-compliance behaviour which emanated from the findings are lack of capacity to comply, social pressure, desire for economic gain and management issues. The study also revealed that the street vendors were not content with the state of their environment.

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Dedication

This thesis is dedicated to my husband Never, for all the sacrifices; my son Anokudzwaishe for all the patience during my absence in undertaking this project and my beloved parents (Mtema family) for providing me with a firm education foundation.

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Abbreviations

CASS	Centre for Applied Social Science
CFH	Civic Forum on Housing
EMA	Environmental Management Act
EMA	Environmental Management Agency
GOZ	Government of Zimbabwe
ISWM	Integrated Solid Waste Management
MLGRUD	Ministry of Local Government Rural and Urban Development
NGOs	Non- Governmental Organisations
SWM	Solid Waste Management
TARSC	Training and Research Support Centre
UNEP	United Nation Environmental Programme
WHO	World Health Organisation
ZINWA	Zimbabwe National Water Authority
ZRP	Zimbabwe Republic Police

CHAPTER ONE: Introduction and background

1.0 Introduction and Overview

Tchobanoglous (1993) defined solid waste management as the control of the creation, storing up, transporting and discarding of waste in ways that do not affect people's health and the environment. The management of solid waste is characterised by a number of activities. These activities consist of production, storage, assortment, transfer and the final disposal. (Booth et al, 2001) Robinson (1986) documented that solid waste management is the application of technologies that will guarantee the systematic execution of the functions of collection, transportation, processing and disposal of waste. Today's world is facing an increasing peril of waste in its cities and this predicament is attributed to globalization and urbanization. Achankeng (2003) noted that globalization is held responsible for the increase in volume and variety of waste which is a consequence of transformed lifestyles and consumption patterns. The author went on to elaborate that urbanization also has led to rapid population growth in cities due to rural-urban migration putting a strain on solid waste management services. City service providers now have to deal with a boom in settlements and all the challenges that come with it (Achankeng, 2003). Many scholars support this outcome and strong positive correlations between rapid urbanization and increase in quantities of waste generated has been documented (Tevera, 1993).

A general increase in waste generation has been noted worldwide and it is beginning to surpass the capabilities of local urban governments to collect, treat and dispose of solid waste in an environmental friendly manner (Srinivas, 2003; UNEP, 2009).

It has been noted that Africa has got the fastest rates of urbanization and generates large quantities of waste pushing the cost of waste management beyond the means of most urban

municipalities on the continent (Srinivas, 2003). Like all other African countries Zimbabwe waste generation is on the increase with average daily per capita approximate increase from 0,485kg in 1997 to 0,58kg per capita per day in 2003 (Tevera, 2003). Most residential areas in the country are characterised by litter and dumpsites and the unwanted behaviour of littering is the major cause of solid waste management problems. Chirisa (2013), noted that most societies even those from Zimbabwe have developed the “throw away culture” theorised by Toffler (1970). Modern societies now have increased tendency towards impermanence and innovation and with this comes the concept of buy, use and throw away (Chirisa, 2013). The scholar noted that in contemporary societies everything has now turned out to be disposable like tissues, cardboard milk containers and permanent things are now considered to be out-of-date. Therefore this throw away culture is leading to massive pollution in cities and in residential areas as people are now producing more quantities of waste which they dispose off in environmentally unsustainable ways. Due to this culture people now have bad attitudes towards solid waste and they are comfortable with disposing waste anyhow.

Ayotamuno and Gobo (2004) documented that the key problem of waste management in most African cities is the unhealthy cultural attitudes and habits practised by people. This study acknowledges the poor management, uncoordinated approach to waste management practices, urbanization and many others as central to waste management problems but however seek to establish how people’s attitudes towards litter or the waste management regulations can have detrimental effects on solid waste.

This is building up from global discourses on environmental sustainability like the Rio Conventions on Sustainable Development and the Agenda 21 which emphasises that it is everyone’s duty to protect the environment for coming generations and that people are also

accountable for the environment they live in. The research will seek to ascertain the fact that if people develop compliance mannerisms to waste management regulation it will be essential in curbing the effects of solid waste on the environment.

Solid wastes are defined as worthless, unwanted or discarded non-flowing materials that arise from human activities (UNEP, 2009). These include household garbage, rubbish, commercial refuse, institutional refuse, construction and demolition debris, sanitation residues and industrial waste (Tevera et al, 2002). Cointreau (1982) defined solid waste as non-flowing organic and inorganic materials which include residues, by-products or end products in the manufacture, delivery or spending of goods and provision of services that are discarded by their usual owners without expecting to be compensated for their inherent value. Khan (2003) defined solid waste as substances that are cheaper to throw away than to keep or utilize. Proper management of all these solid waste is becoming difficult and they are threatening the integrity of the environment and causing risk to the health of people in cities.

Achankeng (2003) and UNEP (2005) classified solid waste into municipal waste, industrial, hazardous waste which was further categorised into biodegradable and non-biodegradable. Municipal waste is mainly characterised by garbage from household preparation, cooking and serving of food, market refuses. Makwara and Magudu (2011), indicate that industrial waste is characterised by plastics, paper, packaging materials, food waste, solvents and ceramic objects and these can be hazardous or non-hazardous.

Hazardous waste entails waste from manufacturing industries, agricultural waste and these have some form of hazard on people and animals (Makwara and Magudu, 2011).

Dumping of solid waste causes various forms of pollution which includes land, water and air pollution and it also ruins the aesthetic value of the environment. Litter in the streets and on

road sides attracts flies, creates breeding areas for disease vectors and produces bad odour (Devlin et al, 1999). Leachates from dumpsites put profound strain on the environment through soil contamination and introduction of chemical pollutants to underground water (Devlin et al, 1999). Numerous diseases like cholera, dysentery and malaria has been linked to improper disposal of waste in sub- Saharan Africa (Senkoro, 2003). Tevera (1991) documented that open waste dumps in Zimbabwe are rats infested and breeding sites for disease vectors such as mosquito and flies. A study done in 3 local authorities in Zimbabwe revealed that illegal dumps lead to food contamination (TARSC, 2010). In most residential areas people resort to burning of waste leading to air pollution and thereby exacerbating the effects of climate change.

Tevera (1991) acknowledged the importance of legislation on solid waste management in Zimbabwe and other studies were done emphasizing on legislative and institutional issues (MILGRUD 1995, Goz, 1998). Solid waste management in Zimbabwe is governed by different ministries but principally the Ministry of Environment, Water and Climate in which the act, Environmental Management Act which govern Zimbabwe's environmental issues fall under. The Urban Councils Act, Public Health Act and Municipal by-laws are also statutory instruments governing waste management in Zimbabwe (Maseva, 2005). Environmental Management Agency being the overall body delegates all municipal solid waste to the city council in which the later can make by-laws.

Residents, specifically for this study the vendors are required to observe these by-laws for the attainment of sustainable cities as failure to comply would result in the worsening of solid waste management problems. This study uses Glenview as a case study to investigate the level and determinants of compliance with the by-laws. It is hoped that once the causes of

non-compliance behaviour are established, city fathers will be able to make informed decisions in implementing waste management strategies.

In Zimbabwe all waste management problems are attributed mainly to the land reform programme which led donors to withdraw funding and also the economic meltdown of 2005-2008 (Chikobvu and Mukarati, 2011). Many scholars agree that the service provision from city fathers was reduced to almost nothing due to institutional and management issues within the council, financial problems and loopholes within the regulatory framework (Chikobvu and Mukarati, 2011). Mangizvo (2008) supports that and records that, solid waste management problems are due to poor management of all the four components of solid waste which are generation, storage, transportation and disposal of waste. These and other studies have provided great insights towards solid waste management problems and this study attempts to add to the body of knowledge the determinants of compliance with the present council regulations. If compliance levels could be higher this can help in reducing the effects of solid waste problems in the environment. Chikobvu and Mukarati (2011) observed that solid waste management challenges in Zimbabwe have been worsened by the presence of street vendors at various designated and undesignated points in the city. These trends according to the mentioned scholars have been encouraged by population density, unemployment and poverty which have pushed nearly every resident into street vending. There is need therefore to integrate street vendors in the planning and management of cities since this sector has grown and is a source of livelihood for most people.

This study therefore endeavours to assess the causes of non-compliance behaviour among these people gaining knowledge from their point of view.

1.1 Statement of the Problem

Solid waste is becoming an ever increasing menace in today's world with dreadful consequences on the environment and on the health of people. Despite having sound solid waste management framework, improper solid waste disposal persists as most residential areas are characterised by litter and dumpsites that are ruining the environmental aesthetic value, attract flies and have bad odours. If this is not controlled it could lead to vector diseases such as cholera, malaria and dysentery. In residential areas, unwanted behaviour of littering is one of the major leading causes of solid waste problems. Compliance with city council by-laws is crucial on both parties the local people and the council as well for the protection of the environment and the health of people. This study will therefore seek to identify the reasons for non-compliance behaviour. A holistic analysis of economic, psychological and social factors involved in making a decision whether to comply with a given regulation or not will also be made.

1.2 Aim of the Study

This study seeks to identify the major determinants of compliance with city council by-laws which are central in solid waste management. The major variables leading to compliance or non-compliance behaviour will be looked at in greater detail.

1.3 Objectives

1. To examine the perceptions and attitudes of Glenview vendors towards the council and its regulative framework.
2. To indentify the major causes of compliance or non-compliance behaviour.
3. To determine if individuals are content with the state of their environment.

1.4 Research Questions

1. How do the vendors perceive the council's legislative framework?
2. What opinions do they have on the legitimacy of the by-laws?

3. Do vendors perceive enforcement mechanisms and sanctions fit for violating by-laws?
4. Do vendors perceive the by-laws as an effective regulative framework?
5. What are the major causes of compliance and non-compliance in Glenview?
6. What factors drives vendors to dispose of waste illegally?
7. What is the cost of following legal waste disposal methods?
8. Are vendors satisfied with the state of their environment?
9. Are the vendors willing to help in the protection of the environment?

1.5 Hypothesis

Compliance with city council by-laws is affected by individuals' attitudes and perceptions.

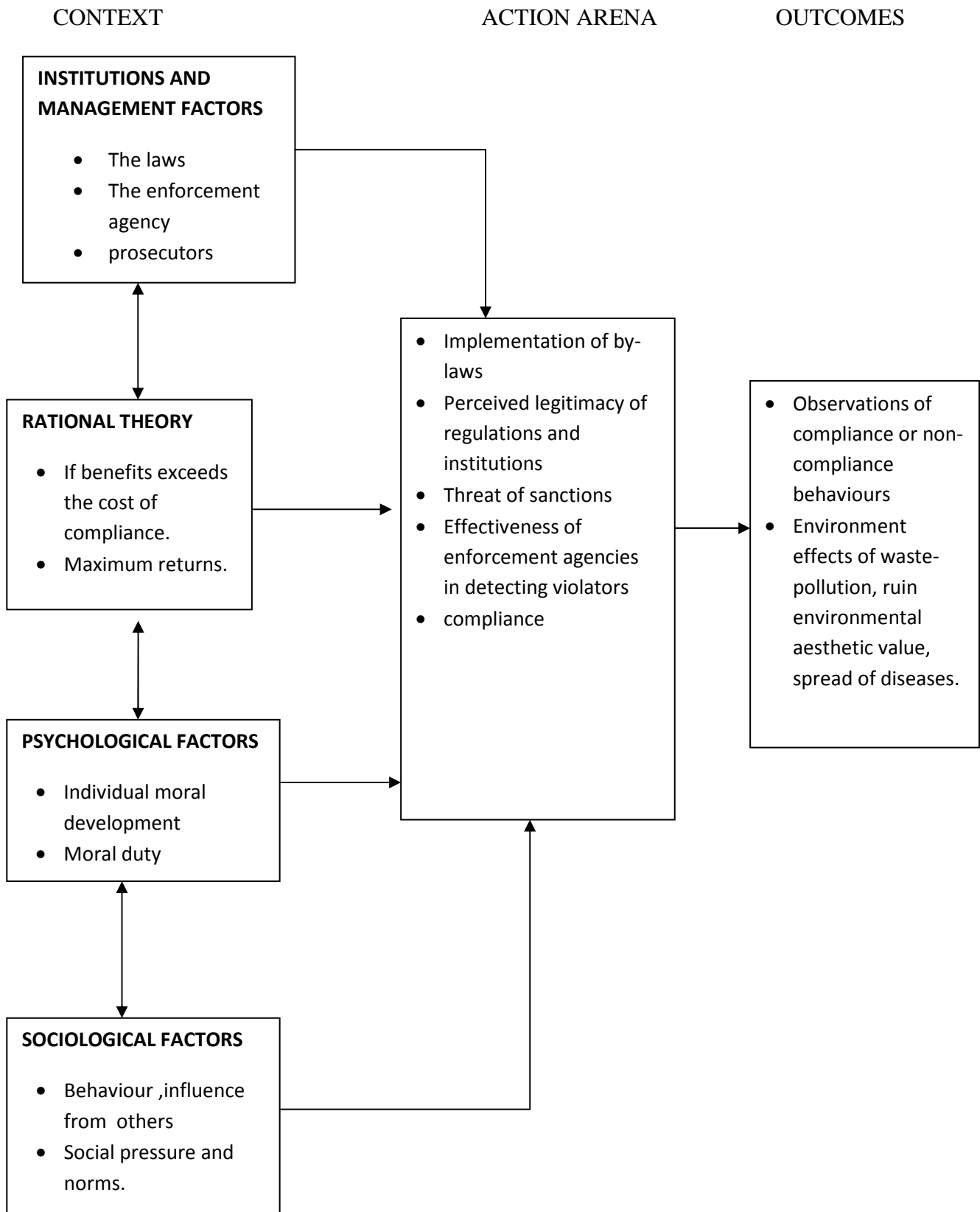
1.6 Justification of the Study

Global discourses on maintaining sustainable cities put forward the ideas that individuals must be accountable for their environments and protect them for future generations. This study builds up from this and seeks to assess individual compliance with city council by-laws governing solid waste. A number of studies have been done on solid waste and these were fundamental in bringing out the management defects of the city council. This research acknowledges the loopholes in management but goes further in assessing how responsible people are in maintaining their environments.

How and why those managed engage in compliance or non-compliance is the core of this study. The information is crucial to both the city fathers and the community at large for the protection of city environments.

1.7 Conceptual Framework

Figure 1: Conceptual Framework



Source: Adopted from Onious Marufu, 2007(Unpublished Thesis)

The framework is based on the premise that vendors as individuals respond to a wide array of forces which determine their behaviour. The context of each person involves the enforcement actions, the regulations or institutional framework, personal benefits accrued, psychological and sociological factors governing an individual. This context influences an individual's attitudes and perceptions towards city council by-laws which will in turn have contributory attributes on outcomes, whether the individual decide to comply or not. The subsequent views will focus on the context, action arena and the outcomes in greater detail.

1.7.1 Institutional and Management Factors

Sutinen et al (1990) articulated that regulations and enforcement have major consequences on compliance or non-compliance behaviour and a few components were noted. Rule making bodies, the actual laws and regulations, the players, the agents authorized to monitor compliance and the agents authorized to prosecute all impinge on the decision to comply or not to (Sutinen et al, 1990). Some enforcement programmes actively publicize their actions of sanctions and prosecutions in order to reduce non-compliance (Sutinen et al, 1990). These scholars also noted that conservation regulations that permit greater flexibility among fishermen resulted in greater compliance. Other regulation characteristics observed to be crucial included stability of the regulation, equity in implementation, design and context of regulation (Nielsen, 2003). Taylor (1990) noted that people obey laws made and implemented by authorities perceived to be legitimate. This was noted to be a measure of how fair and just the rules are as perceived by those regulated or how the regulation caters for environmental safety against people's livelihoods. Knowledge of the rules and ones' capacity to comply also was noted as a determining factor when analysing compliance (Winter and May, 2001). Focusing on the conceptual framework, these institutions and the laws provides a background

one has before taking any action to comply or not to. The laws, agency of enforcement and prosecutors will determine one's actions and views in the action arena.

1.7.2 Rational Theory (Economic or personal benefits)

Kuperan and Sutinen (1999) recorded the earliest works done by other scholars on the major causes of compliance behaviour to regulations in his explanations of the Deterrence models. These models assumed that individuals violate rules after weighing the illegal economic gains involved and that the threat of sanctions is the only policy mechanism available to improve compliance. In their studies which followed Kuperan and Sutinen (1998), supported this fact and explained that the self interested individual consider the potential illegal gains against the severity of sanctions before taking a decision to comply or not to. Taylor (1990) supports this view and proposed the instrumental perspective in which for him an individual is driven by self interest and respond to incentives and penalties associated with an act. Major drivers of compliance then become the economic benefits involved, certainty and severity of sanctions. Sirakaya echoes similar sentiments through his economic theory of compliance; the underlying principle of this theory was the hypothesis that human beings are purposeful and rationale with well defined preferences and act accordingly to maximise satisfaction under the constraints of limited information, resources and budget (Sirakaya, 1997). All this explains the verdict that a rational individual weighs the benefits and costs of his actions and choose the one that maximises the net result (Sirakaya, 1997). This implies that, vendors will take a course of action that best maximise their net gain. If the cost of compliance is outweighed by the illegal benefits of non-compliance the outcome variable will point towards non-compliance. If disposing waste using legal means is costly for vendors they will only worry about the survival of their businesses and disregard the regulations involved.

1.7.3 Psychological Factors

Kuperan (1994) established that there are other contextual factors which enhance compliance like psychological issues. They extended the basic deterrence and the economic models to include moral and social influence variables which resulted in a better off model of compliance behaviour. Their model was integrated by two principal psychological theories which explain how socialization process work in regard to compliance behaviour. Cognitive theory as explained in the works of Kohlberg (1969), propounds that one's level of moral development, intrinsic factors determines compliance or non-compliance behaviour (Kuperan and Sutinen, 1999). In the fisheries studies, the scholars mentioned above noted that some fishermen complied with regulation despite illegal gains involved being higher some felt "the need to do the right thing". Psychology literature explained that individuals have a sense of moral obligation, internal incentives for compliance which is common throughout society and this considerably explained some of the causes of compliance. This implies that some individuals tend to comply even if the illegal benefits are attractive. Moral development was explained as having three stages and the most morally developed individual comply with regulation believed to be legitimate and non-compliance for these people lead to cognitive dissonance (Kuperan and Sutinen 1998). Therefore psychological factors have their role to play in the circumstances a vendor is coming from. The more morally developed an individual is the higher the level of compliance in conducting ones' business. Those at the post conventional stage of moral development are expected to conform to rules and regulations despite the attractiveness of the benefits of non-compliance.

1.7.4 Sociological Factors

Scholars noted that social environmental influences in which the vendor will be embedded can cause compliance or non-compliance behaviour. Sutinen et al (1990) noted that most individuals are susceptible to social pressure and individuals behave uniformly with their group and does not like to be viewed negatively by friends. This implies that there are interdependences among those making a compliance or non-compliance decision. Winter and May (2001), termed this phenomenon social motivations in which they concluded that those regulated desire to earn the approval and respect of significant others with whom they interact. Sources of pressure from their studies were reported to emanate from trade associations, advocacy groups, media, family and friends. Coleman (1990) supported the influence of social and environmental factors which he said are non-monetary in enhancing compliance behaviour. Social groups act as incentives for compliance behaviour and deterrence factors which guard one against non-compliance behaviour. If one violates against a prevailing norm his or her social standing falls and social influence has disastrous effects if large numbers of people are not complying new violators will not be worried because they will justify themselves saying many people are doing it. Social factors are crucial as a context in which a vendor is coming from because of their tendency to persuade compliance or non-compliance behaviour. Vendors may throw their business waste anywhere or unsustainably because many other vendors are doing it and this have catastrophic effects on the environment. Social influence however can be positive if the vendors abstain from littering because of the fear of what significant others will say. Those producing bulky waste or waste from consumable goods which produce odours may resort to dispose waste in proper channels due to the fear of what their counterparts will say.

1.7.5 Action Arena and Outcomes

Basing on the progression steps of the framework, the contextual segment leads to the action arena then the outcomes. There is an interaction between the contexts a vendor is emerging from and the arena where by-laws are implemented. Actors in the arena include the by-laws, effectiveness of enforcement agency in detecting violators, monitoring, and perceived legitimacy among other factors. Since the framework is based on an interaction relationship these actions will result in the evident behaviour of compliance or non-compliance. Non-compliance towards waste management regulations has got disastrous effects on the health of people and on the environment which includes various forms of pollution and ruining the aesthetic value of the environment.

1.8 Context of the Study

This study will focus on the by-laws governing solid waste management in Harare particularly Glenview area however the overall legislation in terms of policies and legislation addressing environmental issues will be looked at briefly. Most of these regulations are sound but the problem of solid waste continues to increase. In addition a brief account of the state of street vendors in Zimbabwe will be presented.

Several laws govern waste management in Zimbabwe and the major problem is the fact that these laws are fragmented. Listed below are the laws that are directly or indirectly related to solid waste management in Zimbabwe:

- Environmental Management Act
- Public Health Act
- Water Act
- Urban Councils Act
- Municipal By-laws

Several policies also are in place to control environmental problems and solid waste issues are embedded within them for example the Environmental Impact Assessment Policy and the Draft Waste Management Strategy to mention a few. However the Environmental Management Act is the major body addressing all environmental issues in the country and is under the Ministry of Environment, Water and Climate. EMA, the agency formed under this act is responsible for the sustainable management of natural resources and the safeguarding of the environment through the prevention of environmental pollution and environmental degradation. The EMA act specifies that any individual who causes pollution to the environment shall pay the cost of rectifying such contamination or the damage and the resultant unfavourable health effects together with the cost of preventing further pollution (EMA CAP 20:27, 2005). The widespread environmental pollution indicates that somehow there is little enforcement and compliance to this regulation.

The EMA act goes further in allowing the local authorities to make by-laws that govern their areas of jurisdiction. These local authorities are mandated to provide environmental management plans describing the environmental standards and their plans to meet the requirements of the act (EMA CAP 20:27, 2005). The Harare city council by-laws which govern the area under study are numerous but this study will focus on these two detailed below:

Urban Council Act (Chapter 214)

Anti-litter by-Laws (1981)

STATUTORY INSTRUMENT 85 of 1981

1) SECTION 4, No person shall deposit or abandon, or cause or permit to be deposited or abandoned, any waste upon any vacant land, public place or premises other than receptacles especially provided for the receipt of such litter.

STATUTORY INSTRUMENT 197 of 1987

2) SECTION 4.1.b, require the owner or occupier of any premises to which no service has been supplied to remove all domestic waste which accumulates on his premises and deposit such waste at a waste disposal site (Harare Waste Management By-laws, 1979)

As mentioned earlier Zimbabwe has got a favourable legislation environment which can succeed in managing the solid waste problems facing the nation. An equally competent enforcement agent is required however to ensure a sustainably managed environment. This study aims to measure why solid waste continues to be mammoth task despite having a better legislation environment in the country. Levels of compliance with the city council by-laws will be assessed amongst Glenview vendors focusing on the determinants of compliance, attitudes and perception towards the laws and the law enforcing bodies and finally to determine if individuals view the importance of the legislation in attaining better environments free from solid waste pollutants. Literature has gaps on this regard locally hence this study seeks to enhance knowledge on compliance with city council by-laws governing solid waste management in Zimbabwe.

1.8.1 An Overview of Street Vending in Zimbabwe

Njaya (2014) defined a street trader as individuals who sell items or services in public places, bus stations and city pavements. There has been a growing trend in the presence of street vendors in Harare in the last 10 years (Njaya, 2014). This is because street vending has become a source of employment for most people who became jobless after the closure of most industries during the economic meltdown. Roever (2006) indicated that the increase in street vendors is mainly due current states of rural to urban migration in search of employment.

Street vendors are mainly comprised the economic active age 21-40 years reflecting high levels of unemployment in the country (Njaya, 2014). Vendors are mainly comprised of female traders though there is an increase as well of males in the streets. Women dominate street trading mainly because this form of work is flexible and women can combine it with household chores (Mitullah, 2003). These trends indicate that the informal sector is now the main source of income for most people (Njaya, 2014).

Vendors in Zimbabwe sell different goods which are but not limited to fruits, vegetables, food, mobile phones, airtime, electrical goods, medical drugs, clothes and services which includes repairs (Dube and Chirisa, 2012). Njaya (2014) noted that street traders also provide services like hair plaiting, pedicure, car wash, bicycle maintenances and cell phone repairs. Street traders occupy various places where there are higher concentrations of people for examples on pavements, schools, hospitals, bus terminus and along most of the streets in the CBD (Njaya, 2014). These traders also are now found along every street in the high density suburbs.

Street traders operate illegally in most of these areas and they are in constant clashes with the ZRP and the council.

Dube and Chirisa (2012) noted that these clashes are mainly due to the fact the vendors are not recognised by urban by-laws. These scholars also suggested that there is need for the city fathers to accept and pave way for the integration of these vendors in to the main economy. Mitullah (2003) indicated the fact that these traders are not recognised in the main economy and there are constant clashes with authorities over the areas they operate in and the sanitation conditions. The conflicts also are mainly caused by the factors that those street vendors cause overcrowding in urban areas and the fact that they dispose waste improperly. Kamunyor (2007) noted that street traders work under extremely difficult conditions which force them not to stock many items. Njaya (2014) suggested that city council should embrace these activities and adapt to changing circumstances in economic activities. Efforts in to embrace street traders in Zimbabwe are beginning to take shape as they are required to register and pay licences, however traders in high density suburbs are not yet included.

1.9 Conclusion

As indicated in the preceding views, much needs to be done concerning solid waste management in the capital. A holistic approach is required to address all solid waste problems. This study attempts to add to the body of knowledge the determinants of compliance to by-laws as a measure of addressing solid waste management problems. It is quite crucial to know how and why the managed are responsible for their own environments. Compliance is determined by management, psychological, sociological and rational factors and these were assessed in Glenview. A rise was noted in the presence of street vendors in the capital.

CHAPTER TWO: Literature review

2.0 Introduction

Literature adopted for this study mainly focuses on theoretical and empirical discussions on compliance behaviour. Compliance has been studied for a long time now and vast bodies of literature contain the determinants, patterns and mechanisms for compliance with environmental management regulation. The major aim of these studies is to understand compliance or non-compliance in order to help in enhancing conformity to rules. This study intends to assess the level of compliance among street vendors with solid waste management by-laws. This endeavour is fulfilled by means of addressing the objectives which are the call for identifying the major determinants of compliance, to examine the vendor's attitudes towards the regulation and to assess if individuals are content with the state of their environments. The literature will be a window through which compliance behaviour in solid waste management can be understood. This chapter will explain compliance using the theoretical arguments provided by scholars. The theories of compliance are the rational theory, the psychological perspective and effects of the social environment together with the empirical studies done by other scholars. A framework will be provided to show these theories of compliance.

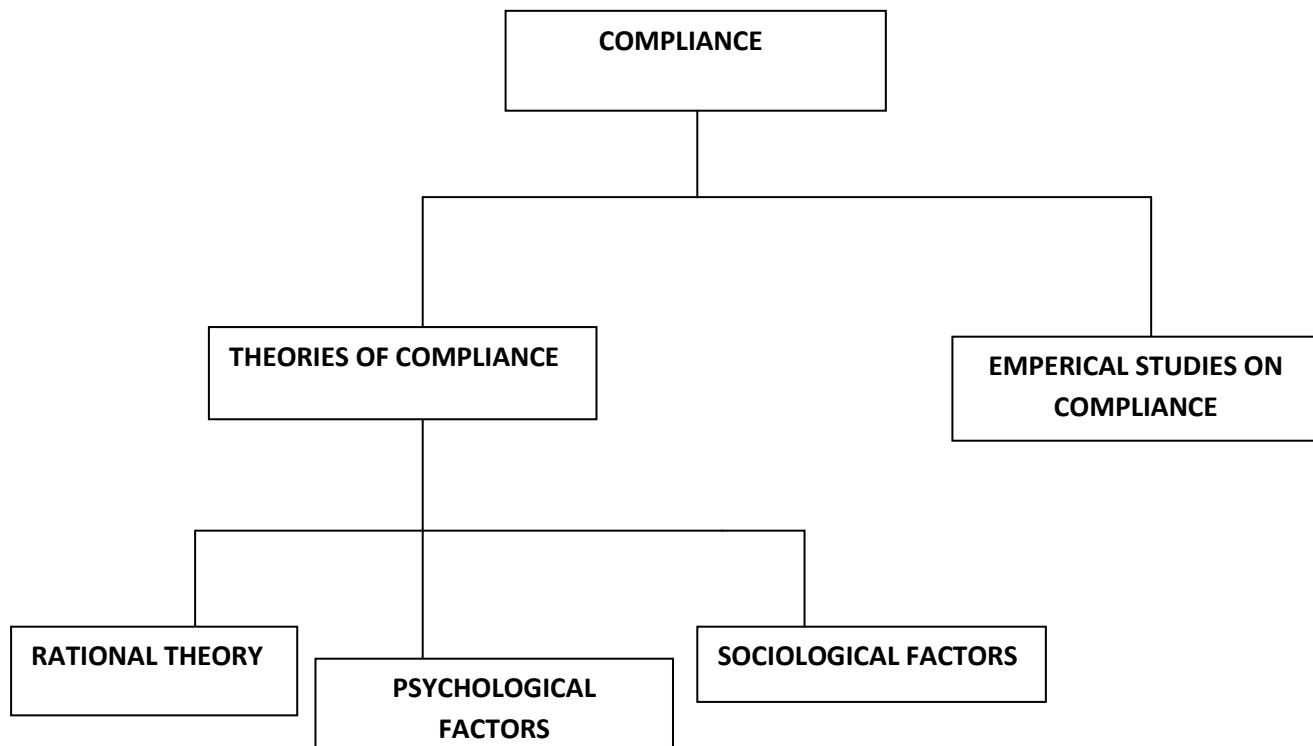
2.1 Compliance and Non-compliance Behaviour

Tyler (1990) observes that compliance to regulation is comprehended as the activities of individuals to conform to systems that have been set in order to control action. Compliance behaviour investigations are based the rational theory; psychological issues of individual and sociological factors see Figure 2.

Empirical studies based on verifiable scientific avenues also provide useful insights to the enquiries on compliance. These studies are fundamental in expressing the management component of compliance.

2.1.1 Framework showing the Theoretical and Empirical Base of Literature

Figure 2: Theoretical and Empirical Base of Literature



Source: Self (2014)

2.2 The Rational Theory

Viswanathan et al (2003) indicates that rational models on compliance behaviour were derived from the works of Adam Smith (1759), who notes that individuals acting in pursuit of self interest can inflict harm upon others. Becker (1968) then developed these views into his theoretical framework which explained concepts on criminal activity (Susilowati, 2003). Becker supposes that criminals act just like other people in that they try to maximize utility under income constraint (Viswanathan et al 1997).

This implies that those who violate the regulations do so only if the anticipated benefits from committing a crime surpass the benefits from engaging in a legal activity. Honneland (1999) notes that individuals resort to criminal activity when opportunities of a legitimate income are insufficient. This rational theory also known as the instrumental perspective was further

explained to include the fact that when faced with an environmental regulation an individual considers the potential illegal gains involved, the probabilities of being detected and finally the penalty charges which follow and on this note the notion of these factors in inducing deterrence to violators is recorded (Sutinen et al, 1990). These theoretical insights raises questions also to the issue at hand in which what amount of penalty will be high enough to deter street vendors from persistent violation. Bewilderment also grip the researcher in trying to establish if there are other ways which can be employed to increase detection since enforcement is costly.

Tyler (1990)'s work on instrumental model of compliance behaviour is equal to Becker's deterrence model (Honneland, 1999). Its argument is that individuals are driven by self interest alone and that compliance is driven by the probability that a violation will be detected and sanction issued. This self interested rationale individual respond to changes in the material, immediate incentives and penalties associated with the act (Tyler, 1990). Sirakaya (1997) supports this view and echoes similar sentiments, the author notes that the rationale behind these economic theories was the assumption that human beings are purposeful with well defined preference and act accordingly to maximize satisfaction under limited information, resources and budget. Winter and May (2001), from their studies on compliance to environmental regulation concludes that these are called calculative motivations in which entities comply with a given regulation after assessing that the benefits of complying including averting fines or other sanctions exceed the cost of compliance.

They propose that a calculus is framed based on anticipated benefit which involves choosing an alternative whether to comply or not, that has a higher net gain.

Sutinen et al (1990) note that for this model self interest is fundamental and individuals are rational decision makers who weigh the practical benefits and losses in respond to a given

regulation. These deterrent models presuppose that the risk of sanctions is the only instrument on hand to enhance compliance. Tyler (1990) echoes the same sentiments on the instrumental or deterrence model in which he notes that individuals are motivated by instant incentives and punishments associated with their actions. This implies that for most rational theorist's external influences like gains and punishments determine individuals to act for their own interests (Viswanathan, 2003).

In the case of fishery management fishers will weigh the potential gains involved in illegal fishing and the possibility of being detected and also the sternness of sanctions before choosing whether to comply or not to. Kuperan and Sutinen (1998) record that fisherman are economic agents who work basing on outcomes involved. In a study done in federally managed fisheries scholars established that it is the individual's perception of what is in his best interest which cause him whether to comply or not that determines his choice not the effects of that decision (Sutinen et al, 1990). In the fishing industry self interest is usually measured in income therefore decisions that allow the greatest inflow of income are carried out (Sutinen et al, 1990). These scholars went on and illustrate that if the expected illegal gain is high, the chance of being caught is low and also if the penalty if convicted is minimal this will result in high non-compliance levels as was the case in the US Federally managed fisheries they studied. All this is in line with the fact that individuals who violate rules endeavour to minimise possible costs and maximize the benefits which might be monetary or non monetary gains involved in the non-compliant act (Sirakaya, 1997).

Major drivers of compliance then become the economic benefits involved, certainty and severity of sanctions. All these insights shed light to the second objective of this study which tries to identify the major determinants of compliance with solid waste management regulation. This implies that theoretically, compliance to solid waste management regulation is determined by the certainty and severity of sanctions and high levels of detection of

violators. For the study underway flags have been raised basing on the fact that human beings are rational individuals who are calculative this then have implications on compliance to solid waste regulation especially by vendors who are aiming at making a living.

2.3 The Psychological Factors

After exploring the field of compliance further, Sutinen and Kuperan (1999) propose a Socio-economic model of compliance behaviour. These scholars found that there are other factors which enhance compliance like psychological issues and the social environment surrounding the individual. They completed the basic deterrence and the economic models to include moral and social influence factors which resulted in a much more all-inclusive model of compliance behaviour. Their model was integrated by two leading psychological theories which explain how socialization process work in regard to compliance behaviour. Cognitive theory as explained in the works of Kohlberg (1969), propounds that one's level of moral development, intrinsic factors determines compliance or non-compliance behaviour (Kuperan and Sutinen, 1998). In the fisheries studies, the scholars mentioned above note that some fishermen complied with regulation regardless of illegitimate gains involved being higher some felt "the need to do the right thing" (Kuperan and Sutinen, 1998 p4). Psychology literature explains that individuals have a sense of moral obligation, internal incentives for compliance which is common throughout society and this considerably explained some of the causes of compliance. This implies that some individuals tend to comply even if the illegal benefits are eye-catching.

Moral development was explained as having three stages and the most morally developed individual comply with regulation believed to be legitimate and non-compliance for these people lead to cognitive dissonance (Kuperan and Sutinen 1998). Kohlberg (1969) did studies with children and young adults seeking to establish how moral development works and conclude that three stages determine moral development. The first one was the

preconvention stage in which individuals at this stage regarded laws as fixed and handed down, these people does not identify with the laws (Kohlberg, 1969). The second stage of moral stages was the conventional stage in which the studies reveal that individuals at this stage consider that they should live up to the requirements of the family and society by behaving in a good conduct. Kohlberg (1969) explains that these people are concerned with society as a whole and hence respect authority. People at this stage are more likely to be compliant since it's within them to respect societal authority. The last stage is the post convectional stage in which people in this stage wish to keep society functioning and believe that laws are social contracts crucial for society and only to be changed by democratic means (Kohlberg 1969). Compliance is the lifeline of these people and failure to live by the rules causes cognitive dissonance.

As Kuperan and Sutinen (1998), notes compliance with regulation does not solely depend on economic determinants only or the threat of severe punishment but it is determined by other factors like psychological ones as noted from the preceding views. Some fishermen comply with regulation foregoing attractive illegal benefits which are involved sometimes. These facts are quite crucial for the study underway as they help provide light on how individuals sometimes relate with societal regulation basing on their moral stage of development. This portion of literature associates the first objective which seeks to assess the individual's attitude and perception towards city council by-laws governing solid waste management.

The moral stages as explained by the preceding section determine one's interaction with the laws and regulations and this indicate that individuals with the highest moral development are likely to identify with the by-laws.

2.4 The Sociological Factors

Scholars note that social environmental influences which are non-monetary can cause compliance or non-compliance behaviour. Sutinen et al (1990) note that most individuals are susceptible to social pressure and individuals behave uniformly with their group and do not like to be viewed negatively by friends. This implies that there are inter-linkages among those making a compliance or non-compliance decision. Winter and May (2001), term this phenomenon social motivations in which they conclude that those regulated desire to earn the approval and respect of significant others with whom they interact. These forms of social pressure emanates from the environment and other external actors. Sources of pressure from their studies were reported to emanate from trade associations, advocacy groups, media, family and friends. It was noted that individuals hardly ever make decisions independently from the behaviours of others (Honneland, 1999). Coleman (1990) supports the influence of social and environmental factors which he said are non-monetary in enhancing compliance behaviour. Social groups act as incentives for compliance behaviour and deterrence factors which guard one against non-compliance behaviour. If one violates against a prevailing norm his or her social standing falls and social influence has disastrous effects if large numbers of people are not complying new violators will not be worried because they will justify themselves saying many people are doing it. Norms were defined as the typical actions, attitudes and expectations among fishers concerning the behaviour of others (Nielsen, 2003). Morals are based on normative obligations one has and these are established by interactions with others (Nielsen, 2003).

Therefore compliance depends on how non-compliance is perceived among fishers in a fishing village or among a group of fishers undertaking the same type of fishery (Nielsen, 2003). Insights are drawn from the studies of Bandura (1969) which shows that social peers are conditioning effects in the environment which can lead to compliance or non compliance

behaviour (Kuperan and Sutinen, 1998). The extent of one's experience and individual encounters also can shape compliance (Honneland, 1999).

These sociological insights help in exploring the major determinants of compliance and will be useful in understanding compliance in solid waste management. Social pressure can be detrimental for compliance and more so in solid waste management since a culture of violating can develop and spread. This study will seek to establish the applicability of this theory to the local context.

2.5 Empirical Studies on Compliance

This section presents the studies done by scholars on compliance and non-compliance behaviour. Most of the studies builds on from the theories of compliance and went on to provide insights on the subject. The evidence from these studies supports the theories mentioned earlier but included a major component of compliance which pertains to the management system of those who enforce compliance behaviour.

2.5.1 Management and Enforcement Factors

Sutinen et al (1990) support the view that the management and enforcement system is crucial in enhancing compliance or non-compliance with fishery regulation. Their studies in fisheries management provide insights on how the management and enforcement patterns have direct and indirect effects on compliance behaviour.

These scholars sub-divide this management variable into five subsections which are, the rule making bodies, the rules, the fishing industry, agencies authorized to guard and monitor and agencies authorized to prosecute violators. This is quite applicable to the study at hand as it seeks to understand the determinants of compliance; the management factors' impact on non-compliance will be established.

2.5.2 The Rule Making Bodies

Tyler (1990) explains the idea of normative compliance in which compliance with the law or regulation is mainly determined by the extent to which individuals accord legitimacy to the enforcement agency and the laws. The author defined legitimacy as a source of loyalty on which the administrators can draw from for them to obtain influence required to govern effectively. Laws made and implemented by agencies considered legitimate tend to be obeyed and a positive linear correlation between compliance and legitimacy was noted (Nielsen, 2003). Normative compliance theory hypothesizes that individual have a propensity to comply with laws that are made by authorities they recognize as genuine. Individuals accord legitimacy to laws basing on the fairness of procedures used to built and implement the laws (Kuperan and Sutinen, 1999). Tyler (1990) observes that when faced with regulations individuals consider the just and ethical instead of self interest. The author further articulates that people comply with the law they think is fitting and consistent with the norms that they already have. This implies that the authority's perceived right to control behaviour is the major variable which drives compliance. These perspectives came into being after it was recognised that compliance in some instances was achieved even though enforcement was weak and sanctions very low. In a series of studies scholars found out that in some cases individuals recognizes legitimacy of the regulation and those who enforce it (Kuperan and Sutinen, 1998).

Fisher's past experience with the rule making bodies, the way one was once treated referred to as procedural fairness, was noted to be a determining factor in according legitimacy to authorities (Nielsen, 2003). In a series of studies done by Nielsen (2003), attribution of procedural fairness tend to increase also where user participation in decision making process was allowed. User participation in decision making led participants to regard the rule making bodies and the rules as legitimate hence compliance levels increased. This may be equated to

co-management as recorded in literature explaining that there were conflicts and problems in Zimbabwe's Lake Kariba fisheries before co-management was introduced (Nyikahadzoi and Songore, 1999). Fishermen and management were hostile to each other mainly because the rules were top down and non participatory (Nyikahadzoi and Songore, 1999). Kuperan and Sutinen (1998) supported this fact and indicated that conservation regulation which allowed greater flexibility among fishermen resulted in perceived legitimacy and higher levels of compliance. Fishermen also do not respect laws which undermine indigenous knowledge systems, local institutional arrangements and their fishing trends and patterns (Sutinen et al, 1990 and Nyikahadzoi and Songore, 1999).

For Tyler (1990), this perceived legitimacy is the honesty built into the measures used to develop and implement laws and regulations. In the case of fishery management, the rule making bodies involve those responsible for the formulating of rules and regulations like the executive and the fisheries council and the rules comes in different acts and conservation plans (Sutinen et al, 1990). Legitimacy of the rule making bodies and the rules was also explained as the sensibleness of the rules and the extent to which one is in agreement with the rules (Winter and May, 2001). This implies the credibility of the laws and the rule making bodies is quite crucial in enhancing legitimacy and compliance respectively. This genuineness of the laws is a normative assessment by individuals of the suitability of the enforcement agency.

Nielsen and Mathiesen (2003) document that legitimacy also involves the content of the regulation this comprise many aspects of the regulation which are the perceived fairness in accessing fish, whether the regulation is meaningful and most significantly for most fishermen in Denmark whether there is compatibility between the laws and the traditional fishing patterns. Therefore compliance to regulation is higher when individuals involved accord a high level of legitimacy to the enforcement agencies (Kuperan and Sutinen, 1998).

2.5.3 Agencies Responsible for Monitoring and Prosecution

According to Sutinen et al (1990) enforcement relate to the efforts by public authorities to control the perceived gains and losses from non-compliance. Agencies responsible for monitoring individual compliance with laws and regulations and those responsible for prosecuting, judging and sanction individuals from violating the laws make up the enforcement factor. Compliance in fisheries is greatly dependent on the resources and institutions devoted to the detection, prosecution and sanction of violators (Sutinen et al, 1990). Susilowati (2003) notes that the major determinant of compliance in fisheries is the probability of being detected and the threat of sanction and all this encompass the enforcement factor. Enforcement in fisheries management entails surveillance at sea-boardings, inspections, guard's undercover actions, number of enforcement agents, hours spent enforcing laws , the amount of equipment available and other forms of monitoring. The presence of all these enforcement mechanisms increases the probability of detection and consequently sanctions thereby reducing non-compliance for some fishermen (Kuperan and Sutinen, 1999). The study will establish if the enforcement factor in solid waste management is effective as it should be to induce compliance.

Honneland (1999) notes that the agencies responsible for monitoring and prosecution in most cases used coercive measures or what the author termed management induced compliance.

This involves the use of power or threats through deliberate efforts by institutions to encourage compliance behaviour. Before the introduction of co-management in Kariba fisheries scholars note that this coercive nature of enforcement was apparent in which the state employed various management measures which include licensing, area closures and gear restrictions (Nyikahadzoi and Songore, 1999). All this indicates the extent that management agencies undergo to ensure compliance in fisheries.

Nielsen and Mathiesen (2003) document the fact that enforcement agencies need to make sure that deterrence works and for it to be so must be likelihood that violators will be detected, the response to violators be quick and conventional and that an appropriate sanction will follow. The way enforcement agencies deal with violators is crucial in discouraging non-compliance. A study done in three Danish fisheries results cement the fact that the risk of detection is a major factor in reducing non-compliance among fishermen (Nielsen and Mathiesen, 2003). Most scholars note the importance of enforcement agencies in taking action against violators because if they fail it can be an incentive for other fishermen not to comply (Nielsen and Mathiesen, 2003). Failure to take action against these violators also contributes to general moral erosion which leads to non-compliance behaviour and providing justification to break rules (Nielsen and Mathiesen, 2003). Deterrence was agreed upon as a crucial mechanism to enhance compliance in fisheries management however some scholars noted that enforcement is costly for most management authorities.

According to Viswanathan et al (1997) some management authorities are facing compliance challenges because of the cost of enforcing regulations. These scholars note that for some agencies detection of violators is low below 1% and this encourages non-compliance among fishers. As was the case in Kariba fisheries, enforcement was very low because the enforcement agency received a very diminutive share of the national budget this then resulted in impartial enforcement due to the lack of finances (Nyikahadzoi and Songore, 1999).

The human and financial resources available were limited as compared to the space of seashore that required surveillance and this led to fish overexploitation on some parts of the shore (Nyikahadzoi and Songore, 1999). This study's information implies that the enforcement agencies at times fail to implement due to lack of resources consequently detection of violators will be very low and this causes high levels of non-compliance in some fisheries.

Compliance in fisheries management is also problematic because in some cases the penalties are not large enough to deter individuals especially when compared to the illegal gains obtained (Sutinen and Gauvin, 1989). Studies by Viswanathan et al (1997) indicates that low penalties cannot deter individuals from non-compliance and raising them is not viable since the courts are reluctant to impose sanctions perceived as extremely severe. Basing on their studies, these scholars concluded that the courts impose sanctions that suit the crime calculated by the harm caused by the detected violation. However, this is not sufficient in deterring individuals from violating and the deterrence model predicts that modest sanctions are not adequate in deterring individuals from illegal fishing (Kuperan and Sutinen, 1998).

Sutinen et al (1990) explain that since legitimacy is perceived there is need for fishermen to know the actions taken by the enforcement agencies against violators. They note that some authorities put on air their successful actions against violators to increase the perceived legitimacy and reduce non-compliance. These scholars made known to everyone the fact that inducement can be used by agencies responsible for monitoring. Inducements relates to recognizing those fishermen that conform to regulation and reward them for example with certificates or publish their names in the media. This raises the expected value of compliance since it will be associated with benefits and hence increase compliance behaviour. Honneland (1999) also echoes similar sentiments in regard to raising compliance levels.

In the author's studies basing on Young (1979) work inducements are a crucial determinant of compliance behaviour because inducements attempt to elevate the value of compliance and reduced the expected value of non-compliance. Questions will rise if the current problems of solid waste management sector are a result of a lack of all these variables.

More so, still on agencies responsible for enforcement most scholars noted that time between detection of violation, conviction and sanction also help in determining compliance behaviour

(Sutinen et al, 1990), Kuperan 1994, Nielsen and Mathiesen 2003). Compliance will be greater if violators are detected and sanctioned quickly meaning the less the time the more the perceived cost. This implies that for compliance levels to be high agencies should process cases quickly to have a greater deterrent effect. These agencies are quite crucial for an individual to decide whether to comply or not. It was noted also that the court procedure has a major effect on compliance at times more than the penalty in inducing future compliance (Tyler, 1990). Tyler (1990) indicates that the court procedures should be accommodating to the fishers because most generally feel that they are up against a big indomitable system which does not pay attention to them.

Empirical studies on compliance provide great light in the study of compliance. These studies based on testable observations mainly provide empirical base on the second objective on the determinants of compliance. Studies indicated the importance of the management bodies in securing compliance or non-compliance with regulation. The study will seek to establish as well the applicability of this fact in solid waste management. In the context of this study, solid waste management problems have mainly been attributed to the governed individuals and light from the empirical literature will result in the management factors also being an object of scrutiny in the current study.

2.6 Conclusion

In summation, the previous chapter indicates that the literature adopted for this study mainly focuses theoretical and empirical discussions on compliance. Three theories of compliance were noted which are the rational, sociological and psychological theory. The rational theory explains that when faced with a problem, individuals weigh the benefits and costs involved in any action and choose the most beneficial. Scholars noted that psychological factors affect compliance in which cognitive issues were critical in the development of one's moral state which leads to compliance or non-compliance. Social environmental forces like social

pressure makes up sociological factors affecting compliance. Many empirical studies also have been done and evidence from these supported the above mentioned theories. However, they revealed some more factors which determine compliance like management factors, the rules, and rule making bodies and agencies responsible for monitoring.

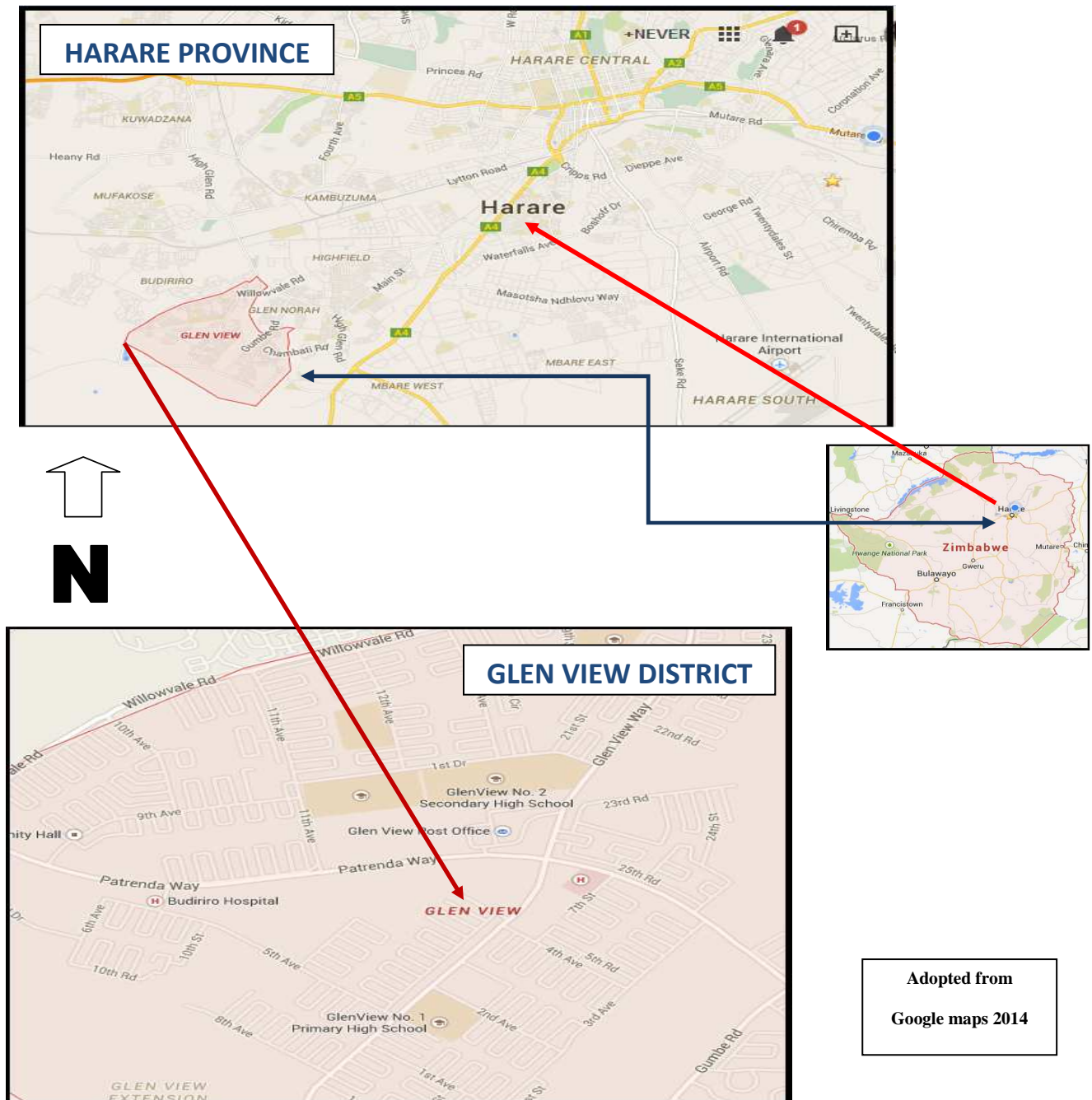
CHAPTER THREE: Research methodology

3.0 Introduction

This chapter will outline an overview of the study area, the research design and methodology employed for gathering data for this study.

3.1 Study Area

Map 1: Glenview



Glen view is a high density suburb situated in the south western part of Harare City on geographical coordinates 17 54 28 south and 30 51 53 east and shares borders with Budiriro and Glen Norah suburbs. Harare falls in the warm temperate category with an average annual temperature of 17C (Springate et al, 2009). The average annual rainfall ranges from 825mm to 855 mm. These characteristics have direct and indirect implications on solid waste management in Glenview. The wet season is characterised by high rainfall totals which accelerate the decomposition of waste abandoned in open spaces creating smelly environments and the threat of disease spread. The high temperatures during the dry season accelerate fires on various heaps of waste in the area creating smoky environments.

The area is made up of three wards 28, 30 and 31 of the Harare Municipality. According to the Zimstat (2012), Glenview area has a population of 93 773 people and almost half of them live in ward 30. The area has some NGO operating in the area but none which specialize in waste management and this has implications for waste management.

The area is characterised by a boom in street vending which become the biggest employer of the jobless and most specialize in carpentry, illegal street tuck shops, and barbers, sellers of perishable agricultural produce like tomatoes, maize potatoes and vegetables, stationary, meat, airtime, hair salons, welding, clothing wares among others. These vendors are in constant clashes with the law enforcers. In a report published by the City of Harare Department of Waste (2011), these vendors produce different types of waste which are but not limited to rubbish, food, paper, plastic, glass, agricultural waste, metals, leather and textiles.

3.2 Research Methodology

3.2.1 Quantitative Approach

The researcher mainly used quantitative approach mainly because data can be expressed, measured numerically and analysed by statistical means as recommended by Crawford

(1990). In addition this approach was specifically chosen because since data can be analysed through standardised testing quantitative approach then is more reliable. Questionnaires were employed mainly as the quantitative way of gathering data and the tool was cross cutting all objectives of the study. Numerical data on the attitudes of vendors towards city council by-laws, determinants of compliance and contentment on the state of the environment was gathered and subjected to rigorous quantitative analysis. This approach was much faster and allowed the researcher to cover much ground with limited time.

3.2.2 Qualitative Approach

The researcher further included qualitative approach mainly to interpret some of the quantitative data which needed explanation. On this note key informant interviews (interview guide appendix1) with the City of Harare Waste department were done to seek interpretations of some variables found in the questionnaires. Field observations, secondary data analysis and photography helped also in explaining some quantitative phenomenon of the research.

3.3 Sampling

3.3.1 Study area and Selection

Glenview area was purposively chosen as the study area mainly because of the abundance of street vendors and the growing home industries found in the area. The areas' streets are marred with street vendors selling various commodities like furniture, food stuffs, vegetables, tomatoes among other stuffs. Glenview was also advantageous in terms of time and financial resources.

3.3.2 Sampling Design

Since Glenview Street vendors are not registered as yet finding the population sampling frame was difficult. A sampling frame was created by the researcher through registering the vendors who were on the street that particular day. Systematic random sampling was then employed and it involved choosing the n th individual from the ordered sampling frame. N units in the population were ranked in order from the first to the last. In order to select a

sample of n units, a step k was calculated ($k=N/n$) population size divided by sample size and a unit was picked at random from the first k units and every k th unit was then picked.

3.3.3 Sample Size

The sample used for this study comprised of 120 street vendors from Glenview area's 3 wards. These respondents were chosen from a population of 600 vendors registered in the area. Determination of 120 as the sample size was done via an apriori power analysis which determines the sample size given the expected effect size, alpha and power (Erdfielder et al, 1996). It provided an acceptable statistical power of 0.95 for detecting a reasonable correlation of one tailed test at 0.05 level of significance. Apriori was used for this study primarily because it determines the appropriate sample size which yields statistically significant p - values.

3.4 Data Collection Methods

3.4.1 Questionnaire

The questionnaire used for the study was developed over a period of two weeks before it was taken for a pre-test study in Glen Norah area on 28 October 2014 using a small sample of ten randomly selected vendors. The pre-test was done to check people's understanding and ability of answering the questions.

All areas of the questionnaire which were not clear and required amendment were highlighted and corrected before the final version was administered. As advised by Kothari (2004) that a comprehensive pre-test required a preliminary data analysis in order to check the design and coding measures, this was done to make sure everything was in place before issuing the final version of the questionnaire. The preliminary data analysis was done using cspro package of analysis and the statistical package for social science (spss). An estimation of the average time that was required to finish each questionnaire was established.

A total number of 120 questionnaires were administered to randomly selected vendors in the study area for the actual study. These questionnaires were addressing the three objectives on vendor's attitudes towards municipal by-laws; identification of the determinants of compliance and also assessing if individuals were content with the state of the environment which they were working in. Survey questionnaires were chosen as one of the data gathering tool because of its legitimacy following the recommendation by Milne (1999) who articulated that questionnaires are a high-quality research tool because it allows responses to be gathered in a standardized manner making them reliable. Questionnaires were chosen for this study mainly because it is a simple, cheap and is a reliable measuring tool. A structured questionnaire with closed type questions was employed in which answers to questions were provided with respondents choosing from the set of answers given.

The questionnaires were administered by two enumerators other than the researcher and these two were taken through and trained how to administer the tool. Each enumerator had forty questionnaires to administer from the 6th to 8th of November 2014.

3.4. 2 Key Informant Interviews

As mentioned earlier that the study was mainly quantitative, key informant interviews were done and these were beneficial in interpreting the results obtained from qualitative methods and also for the provision of suggestions and recommendations. These interviews were required since information comes from knowledgeable people with insights that no other method can provide. The researcher selected key informant interviews also because they involve selecting a group of individuals who are likely to provide needed information, ideas and insights on a particular subject as suggested by Denzin and Lincoln (2005). Interview guides were made and administered to informants from the City of Harare who explained some of the quantitative data on the lack of surveillance and monitoring of the areas under

their jurisdictions. All the information was mainly answering the second objective which sought to answer questions on the determinants of compliance.

3.4.3 Secondary Data Sources

Copies of City Council's by-laws were obtained from the City of Harare Waste Management Department for an understanding of the laws. The anti-litter by-law and the requirement to collect waste to disposal sites if the council fail to provide such a service were chosen as the two by-laws guiding the study. References were also made to the EMA Act for an understanding of the link between the country's main environmental management body and the city council. Different sources of literature pertaining to issues under study were analysed and these included books, journals, websites and newspapers and these provided useful information on the first objective on the attitudes of individuals towards the city council and the by-laws as well.

3.4.4 Observation

The researcher observed vendors as they did their work mostly at Makomva shopping centre and the streets adjacent to Glenview Furniture Complex without participating in their business. Observation was crucial for noticing some behaviour and trends in non-compliance with waste management regulation. The researcher incorporated this technique to cross check the various ways vendors said they used in disposing waste. The use of fire as a control mechanism was noted and it addressed some of the issues on moral obligation as a determinant of compliance. Field observations of illegal dumpsites were made and also the type of waste produced by vendors was recorded to make a comprehensive study. The researcher also noted that the area lack skip bins for disposal of wastes.

3.4.5 Photography

This method was used in conjunction with observation to address the third objective assessing contentment with the state of the environment. The method included taking pictures of heaps of waste adjacent to where street vendors operated their business, the type of waste produced and also records of how vendors sometimes resort to burning of waste as a control mechanism. Burning waste was also an indication that the vendors were not happy about how the area around them was polluted. The method was also demonstrative of the issues at hand for evidence when providing recommendations.

3.5 Data Analysis and Presentation

Data was analysed using the Census and Survey processing system (cspro) and then exported to spss for further analysis. The cspro was chosen as the analytical tool for this study because it has better data quality than other processing packages available. It allows for data entry, editing, tabulation and dissemination and the system has several features which allows for greater accuracy of results.

Due to the flexibility of this processing system the researcher was able to examine files for inconsistencies and other errors after the end of each data collection session. After the data entry on cspro the researcher exported the data to a statistical package spss for further analysis.

Spss led to the generation of descriptive statistics of proportion and standard deviation of the attitudes and perceptions of Glenview vendors. Tables were created showing the demographic characteristics of respondents which is crucial for the knowledge of socio-economic traits.

Multicollinearity was noted on some independent variables as they had a nearly perfect linear relationship and some of these were dropped basing on the Multi-collinearity Bivariate Test. Those variables with a correlation coefficient of .7 and above were dropped because

they can affect the accuracy of the results. The test was relevant for the researcher to establish association patterns between variables.

Multi Linear Regression analysis was then incorporated to outline the determinants of compliance and establish the association between the variables. It allowed the researcher to explore the relationships between variables and significant relationships were noted. Descriptive statistics were employed to analyse the final objective on the vendors' contentment with the state of the environment. Proportions, standard deviations and graphs were generated from spss for analysis.

Qualitative data from key informant interviews was incorporated in the analysis as explanations of qualitative data. Key informant interview data mainly explained objective one on attitudes and perceptions. Informants from the city council explained why the vendors view the council in such a negative regard.

3.6 Limitations of the Study

The actual number of street vendors in Glenview has not been documented since most of them are not registered vendors. This had direct effects on the sample which may or may not be the actual representation of street vendors in Glenview. The numerical value of compliance was problematic since it was problematic to measure and quantify compliance. However due consideration was taken to ensure statistical measure of compliance.

3.7 Ethical Considerations

All participants who took part in the study did it out of their own free will. They were told of their rights, to withdraw anytime they wish to do so and also assurance that the information they were providing was to be used for academic purposes only. Confidentiality was extremely respected as participants were informed that their identity will not be revealed or any other potentially identifying information in the final report of the project. Informed consent was sought as participants were told the purpose of the study.

3.8 Conclusion

Conclusively, the chapter focused on an overview of the study area, the research design and the methodology employed in gathering information. Glenview was chosen as the study area because of the increase in numbers of street vendors who sell different commodities and services like tomatoes, maize, potatoes, vegetables, stationary, meat, welding and hair salons. The research was mainly quantitative in nature and questionnaires were the main tool used for data collection as it encompassed all the three main objectives. Secondary data analysis, key informant interviews, observation and photography validated the questionnaires data. Cspiro was used for data entry and the data was exported to SPSS for further data analysis. Some independent variables were dropped due to multicollinearity. The association between the determinants of compliance was established using Multi-linear Regression analysis.

CHAPTER FOUR: Presentation and discussion of research findings

4.0 Introduction

This chapter presents the data that was collected during the field work. Presentation of the findings will largely employ the use of graphs, tables and charts. The subsequent analysis is guided by literature, information from the questionnaire survey and synthesized by insights from key informant interviews to construct a comprehensive study. The results presented are meant to cover all objectives as the questionnaire was a cross cutting tool embracing all the objectives. As mentioned earlier key informant interviews data will be presented as well to clarify the survey data.

4.1 Demographic Characteristics of Respondents

Demographic characteristics of respondents were captured to shed light to the socio-economic descriptions of the sample and how these may have implications on compliance with city council by-laws. These included gender, marital status, and highest level of education, age, household size, household head status and income as shown in Table1.

Table 1: Demographic Characteristics of Respondents

Descriptive Statistics					
	N	Minimum	Maximum	Proportion	Std. Deviation
Gender of respondent	120	0	1	0.61	0.490
age of respondent	120	21	60	38.83	9.201
Marital Status	120	0	2	1.03	0.501
Highest level of education	120	0	3	1.86	0.639
household size	120	3	9	5.27	1.268
Household head	120	0	1	.60	0.492
average monthly income	120	50	900	168.50	146.893
How long have you been operating from this area	120	1	15	6.63	3.167
Form of waste your business generate	120	0	1	.35	0.479
Valid N (list wise)	120				

Source: Fieldwork data 2014

The sample (n= 120) consisted both sexes. The proportion of females who took part in the study was 0.61. This implies that 61% of the respondents were females whilst the remainder 39% consisted of the males. This inclusion of both sexes clarifies the fact that street vending now includes an increased number of males as well than previous studies shows. This may illustrate the verdict that more males are now involved in street vending than before due to the rise of unemployment. As supported by Njaya (2014), there is an increase of the numbers of males in street trading mainly because many people are depending on the livelihood strategy for survival.

Basing from the findings of the study, street vendors in Glenview are comprised by individuals of different ages which ranges from 21 years to 60years. The average age of street vendors sampled from the population was 38.83 years and the standard deviation was 9.201. The youngest vendor was 21 and the oldest vendor 60 years and this explains the huge standard deviation. This trend indicates that street vendors are comprised of all ages but mainly the economic active age which works to support dependants. In Zimbabwe Street vendors are mainly comprised of 21-40 age group as the informal sector became the major employer of the unemployed and this match up with the findings of the current study (Njaya 2014).

Most of the sampled vendors indicated that they are married explained by a mean of 1.03 meaning to say only a limited number were single, widowed or divorced. Most of the respondents had families to look after and street trading was their major source of income. The findings revealed that 60% of the respondents were household heads whilst the remainder 40% were not household heads. The implications of this lies in the fact that street vending in Glenview is a viable source of livelihood that is providing people with the much needed employment opportunities and income.

The mean household size was 5.27 with a standard deviation of 1.268 signifying that most vendors' households had at least 5 or more people. The least household size was 3 whilst the household with most individuals had 9 people. This implies that due consideration needs to be taken when dealing with street vendors as they have many dependants looking up to them.

The results illustrated that the majority of the sampled vendors attained secondary education whilst a limited number had no formal education, had primary education or had a tertiary qualification. The mean of 1.86 explain the fact that literacy levels are high among street vendors as most had a secondary education qualification. Most of the respondents especially those with a tertiary qualification explained the fact that street vending was a safe haven for them to earn income as they awaits better employment opportunities. Njaya (2014) echoes similar sentiments as the author notes that the presence of graduates in street trading in Zimbabwe can be explained by the fact that vending is a refugee activity to bring in subsistence wages in the absence of formal employment. A study done in Glenview by Mangundu et al (2013), support this verdict as almost all of their respondents had completed ordinary level and most had some form of training.

The average monthly income of respondents stretches from USD50 per month for some vendors to USD900 per month for others. The results in the table indicate that there is a huge difference in the average monthly incomes that street vendors acquire from their businesses. The mean monthly income is \$168.50 with a standard deviation of 146.893 and this shows an enormous variation. Some street vendors got as little as \$50 whilst their counterparts obtain a monthly income of \$900. Street vendors especially those in the carpentry industry have high income totals as some of their wares are sold on higher prices like doors (\$25) , base beds (up to \$80), pushing trays (\$15) and wardrobes (up to \$250).

Those vendors engaged in selling food stuffs earn average incomes as some of the stuffs have lower profit margins and they have to sell high volumes to gain. Street vendors involved in selling different items like sweets, maputi, drink, compact discs, vegetables have lower income totals as compared to those involved in selling sadza and soft drinks. Street vendors involved in services like plaiting and haircuts had moderate income which fluctuates earning more income during month ends.

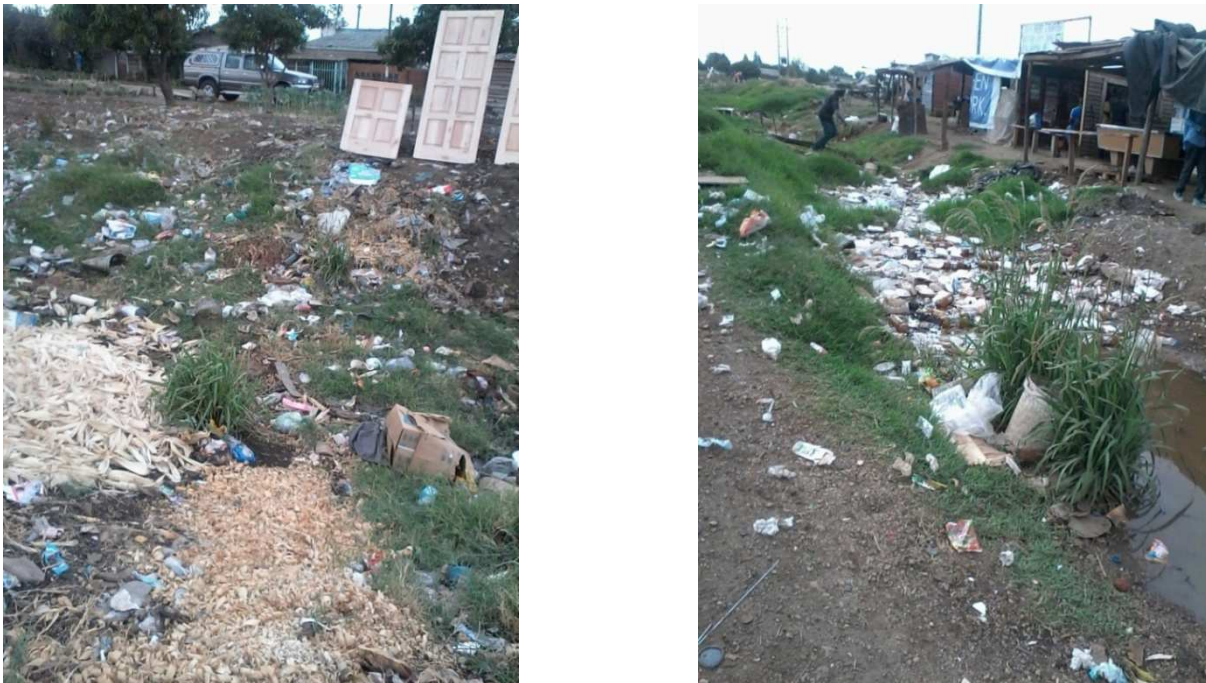
The period of operating business in Glenview ranged from a year up to 15years with a mean of 6.63 and standard deviation of 3.167. Some vendors had been operating their business especially some from Makomva Shopping Centre for the last fifteen years and have been supporting their families for such long with proceeds from street vending.

Most of the respondents, 65% alluded to the fact that their businesses produced biodegradable waste which is extremely putrescible and incorporated discarded tomatoes, fruits, vegetables, wood from carpentry and food waste. This bio degradable wastes are difficult to burn and they caused smelly environments adjacent to where the streets vendors work from. Of the sampled vendors 35% indicated that their form of business produced non-biodegradable waste which incorporated paper, plastic, metal, glass, rubber, leather, tin cans and cardboard. Achankeng (2003), provides this division in the types of wastes produced in different sectors as the author notes that municipal solid waste include biodegradable and non- biodegradable waste which are waste from household preparation, cooking and serving of food, market refuses, paper, carton, plastics, rubber, leather among others. The results of this study reveal that street vendors in Glenview also produce biodegradable and non-biodegradable waste including the components of municipal solid waste as indicated above.

There are limited amounts of industrial wastes as portions in the area had metal, leather and bricks but however whether the waste is hazardous or not was not established.

Observation method provided evidence of heaps of packed lunch empty containers and plastic bottles as most vendors by lunch from other street vendors who are in the food business. Some of the type of waste like empty plastic containers and wood waste from carpentry produced by Glenview vendors is shown in Figure 3 below.

Figure 3: Type of Waste produced by Glenview Vendors



Source: Fieldwork data 2014

Different business activities produce different amounts of wastes. Business activities like carpentry, produces large amounts of waste per day as compared to others, for some like those involved in perishable goods their amounts of waste vary depending on how busy the season is. Those involved in the selling of items like compact discs, sweets and freezits produces limited amounts of waste on their business premises in contrast to their colleagues like the ones who operate food takeaway outlets on the streets.

Street vendors in Glenview are involved in selling different items on the streets like tomatoes, fruits, vegetables, wardrobes, doors, pushing trays, sadza, sweets, puffed corn (maputi), compact discs, firewood, maize cobs, sand, bricks services like haircuts, plaiting, bicycle repairs, cell phone repairs, whatsapp installation, cell phone unblocking among others. Figure 4 below shows some of the wares sold on the streets in Glenview, doors, tomatoes, metal pots and bricks.

Figure 4: Some of the items sold in Glenview



Source: Fieldwork Data 2014

Some of the vendors resort to burning of waste as a control mechanism regardless of the environmental effects involved as shown in Figure 5

Figure 5: Evidence of Burning of Waste in Glenview



Source: Fieldwork Data 2014

4.2 Proportions Showing Respondents' Attitudes and Perceptions towards the City Council and its by-laws (Objective- 1)

The respondents' attitudes and perception towards city council and its by-laws address the first objective and the table below summaries the results.

Table 2: Proportion and standard deviation of respondents' attitudes on city council and by-laws

Descriptive Statistics

	N	Minimum	Maximum	Proportion	Std. Deviation
Do you regard the anti-litter by-law as fair and just	120	0	1	0.89	0.313
Do you regard collecting waste to disposal sites as fair and just	120	0	1	0.50	0.502
Is the enforcement agency competent in implementation	120	0	1	0.27	0.444
Were you consulted during formulation of by-laws	120	0	1	0.19	0.395
Are the penalties for littering severe enough	120	0	1	0.17	0.374
Are the penalties for not collecting waste severe enough	120	0	1	0.16	0.367
Does council carry out surveillance and monitoring programmes	120	0	1	0.39	0.490
Are violators quickly detected	120	0	1	0.03	0.180

Is the council right in imposing this regulation	12 0	0	1	0.83	0.382
Is the reason for by-laws environmental protection	11 9	0	1	0.92	0.266
Valid N (list wise)	12 0				

Source: Fieldwork data 2014

The results in Table 2 indicates that street vendors in Glenview regard the anti-litter by-law as a fair and just piece of regulation which must be implemented as shown by the proportion of 89% indicating that most of the respondents view it as fair. This implies that respondents have a positive attitude towards the regulation and non-compliance is due to other causes not the anti-litter by-law. However the second by-law which entails the requirement by the council to collect waste to disposal sites if no collection services are offered is not accepted as fair by half of the respondents as 50% of the respondents agree. This has implications for compliance levels as half of the sample views this by-law as unjust. This is because most respondents view collecting waste to disposal sites as the council's duty hence regarding it as unfair and just. Only a few people regard the city council as a competent enforcement agent shown by a proportion of 27%. This is mainly because Glenview area sometimes goes for weeks or months without the privilege of getting city council services. This then results in the creation of illegal waste dumps along roadsides or in open spaces. All these variables have disastrous effects on compliance as they affect attitudes and perception of street vendors. Key informant interviews however indicated that the council lack capacity to adequately provide services consistently. However, some scholars express that this lack of

competence on the part of the city council is mainly due to management factors like lack of proper coordination and all stakeholder participation (Mangundu et al, 2013).

These findings reveal that consultation during formulating and implementation of these by-laws is little or non-existent as the majority reported that there was no consultation shown by a proportion of 0.19%. Sutinen et al (1990) reported that management plans which tolerate what those who are managed think and allows much flexibility amongst them are likely to yield high compliance levels. Compliance with the city council by-laws therefore is not guaranteed as there is little or no consultation with street vendors during formulation and implementation of the regulation.

Penalties for both the by-laws do not have the deterrent effect because of lack of enforcement. Most street vendors know the penalties exist but do not know the amounts as these have not been endorsed on them. The council personnel come on some occasions and confiscate their products due to selling on undesignated places but never on abandoning waste in open places. The penalties range from USD10 upwards and considering the vendor's income the charges are fair. The certainty and severity of sanctions was noted to be quite crucial in deterring individuals (Sutinen et al, 1990, Kuperan and Sutinen, 1998). The local authority lacks a consistent enforcement programme hence the penalties lack the deterrent effect it is supposed to have.

Due to lack of surveillance and monitoring (39%), violators are not detected and most get away with it. This has detrimental effects on compliance as new offenders will violate rules knowing there is little or no monitoring. In a study done by Nyikahadzoi and Songore (1999), overexploitation of fish ripened in Kariba mainly because there was impartial monitoring caused by lack of adequate personnel to watch the shore line that needed to be patrolled. This

study also shed light to that regard noting the importance of monitoring and surveillance as this will enhance compliance levels.

83% of the respondents accepted that the council is right in implementing these by-laws and also most of the sampled individuals believe the sole purpose of these regulations is for the upkeep of the environment. This implies that there is an alignment between the by-laws and the internal capacities of individuals as advised by (Tyler, 1990). The author notes that compliance is high if individuals accept the appropriateness of laws in controlling behaviour. The findings of this research are in line with this verdict as individuals accept the appropriateness of the laws however lower levels of compliance indicate the fact that other forces are at play like the management agencies themselves.

4.3 Multi-Collinearity Test using Bivariate

Table 3: Multi-collinearity Test

Correlations								
		Monitoring	Social pressure	Non enforcement	Moral obligation	Quantity	Inconsistency	Legitimacy
Monitoring	Pearson Correlation	1	-.046	0.129	-0.006	.092	.080	-.112
	Sig. (2-tailed)		.621	.160	.948	.319	.384	.224
	N	120	120	120	120	120	120	120
Social pressure	Pearson Correlation	-.046	1	.092	.042	.170	.255**	-.029
	Sig. (2-tailed)	.621		.320	.645	.063	.005	.749
	N	120	120	120	120	120	120	120
Non enforcement	Pearson Correlation	.129	.092	1	.100	.067	.219 ⁺	-.021
	Sig. (2-tailed)	.160	.320		.279	.467	.016	.823

	N	120	120	120	120	120	120	120
Moral obligation	Pearson Correlation	-.016	-.033	.068	.705**	.264**	.297**	.058
	Sig. (2-tailed)	.859	.719	.459	.000	.004	.001	.528
	N	120	120	120	120	120	120	120
Inconsistency	Pearson Correlation	.080	.255**	.219*	.181*	.330**	1	.042
	Sig. (2-tailed)	.384	.005	.016	.048	.000		.648
	N	120	120	120	120	120	120	120
Safe for the environment	Pearson Correlation	.014	.027	.127	.195*	.230*	.219*	.131
	Sig. (2-tailed)	.878	.770	.166	.033	.012	.016	.155
	N	120	120	120	120	120	120	120
*. Correlation is significant at the 0.05 level (2-tailed).								
**. Correlation is significant at the 0.01 level (2-tailed).								

Source: Fieldwork data 2014

Variables were highly correlated and there was need to drop some using the Multi-collinearity test. If the predictor variables are highly correlated it reduces the precision of the estimation. Variables like penalty, detection, social influence, moral obligation in relation to burning waste and economic gain were dropped to address multicollinearity and the findings are shown in Table 3 above.

The test shows that there is a positive correlation between social pressure and inconsistency in the provision of services which is significant at the 0.01 level. This association indicates that failure by the city fathers to provide consistent services as clarified in the preceding views results in non-compliance.

Those who are managed have direct influence on each other and failure of receiving services can result in non-compliance as individuals will be influencing one another at times by just observing how peers are disposing of their waste. Sutinen et al (1990), note that individuals are so susceptible to social pressure and especially if they belong to the same group.

Non enforcement of the rules or the penalties is positively correlated to inconsistency in offering the waste collection services. All this pertains to the management factors of compliance. An inefficient local authority fails to enforce its rules and also provides poor service. Susilowati (2003) indicates that lack of enforcement and failure to provide services are some of the causes of non-compliance.

A positive correlation between moral obligation and the quantity of waste (0.01 level) was noted. Most respondents with bulk waste indicated that they are not comfortable with dumping waste mainly because of the quantities.

Some respondents indicated that they dispose waste improperly because they perceive its biodegradable therefore safe for the environment. This is correlated to moral obligation at the 0.05 level of significance.

4.4 Linear Regression: Determinants of Compliance with City Council by-laws (Objective-2)

4.4.1 Conceptual Framework

The linear regression equation that was used to determine the determinants of compliance to city council by-laws is,

$$Y_1 = B_0 + B_1 X_1 + B_2 X_2 + B_3 X_3 + B_4 X_4 + \dots + e$$

Y_1 is the dependent variable

X_1 s are the independent variables

4.4.2 Dependent variable

Compliance

For this study the dependent variable (Y_1) is compliance behaviour. Compliance with city council by-laws is achieved if the vendors place waste only in recommended areas and non-compliance refer to a state whereby vendors does not mind where they place litter. The dependent variable was measured on a three point Likert scale, which had measures of never (0), sometimes (1) and always (2). Never was a measure appropriate for vendors who did not follow the by-laws (frequent violators), sometimes was for those who marginally follow the prerequisites of the regulation (occasional violators) whilst always referred to those who where mindful and followed the laws at all costs (non-violators). Compliance was assessed for two Harare city council by-laws which are

1. The anti-litter by-law
2. The requirement to collect waste to disposal sites if the council fail to provide such service

4.4.3 Independent Variables

The independent variables were chosen with guidance from empirical studies and these were the determinants of compliance which included legitimacy, penalty, detection, social

pressure, moral obligation, quantity of waste, capacity to comply, age, income and type of waste.

Table 4: Independent Variables

Explanatory variable	Description and type of variable	Expected Sign
Age	Age of respondent (years)	+
Education level	Highest level of education attained	+
Average income	Average monthly income (\$)	+
Type of waste	Biodegradable or non-biodegradable	-
Quantity of waste	Estimation of the amount of waste generated(L)	-
Period operating the business	Number of years operating from the area (years)	+
Perceived legitimacy	Regard by-laws as fair and just(0 NO, 1 YES)	+
Penalty	Are the penalties severe enough(0 NO, 1 YES)	+
Detection	Are you afraid of being seen by council staff*	+
Social pressure	Afraid of what people will say *	+
Social influence	Because everyone is doing it *	+
Non enforcement	The council is not enforcing its rules *	+
Capacity	Don't have proper places to deposit waste*	-
Habit	Dumping waste without any conscious thinking *	-
Economic gain	Only concerned with the survival of one's business *	-
Moral obligation	Abandon waste in open spaces*	+
Quantity of waste	Moderate or bulk	+

Inconsistency in collection	Council does not collect waste consistently*	-
Type of waste	Biodegradable or non biodegradable	+

(* 0= never 1= occasionally 2= sometimes 3=always)

Source: Fieldwork data 2014

Table 5: Determinants of Compliance with the Anti-litter By-law

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	Perceived legitimacy (efficiency of enforcement agent)	.127	.072	-.167	-1.762	.041*
	Detection of violators	-.063	.075	-.080	-.835	.406
	Social pressure (what others will say)	.321	.107	.344	3.002	.003**
	Non enforcement	-.180	.105	.169	1.725	.033**
	Capacity to comply	.123	.089	.137	1.383	.020*
	Habit	-.053	.095	-.054	-.551	.583
	Economic or personal gain	.086	.150	.057	.573	.568
	Moral obligation	-.148	.097	-.200	-1.528	.130
	Quantity of waste	.015	.071	.022	.209	.835
	Inconsistency of service	-.099	.092	-.114	-1.068	.288
	Perceive biodegradable waste safe for environment.	0.133	0.156	0.086	0.854	0.395

a. Dependent Variable: Are you always mindful of the anti-litter by-law

$R^2 = 0.390$, * = 10% level of significance ** = 5% level of significance

Source: Fieldwork data 2014

Table 5 illustrates that compliance with city council's anti-litter by-laws is determined by a number of factors which are legitimacy given to the enforcement agent, social pressure, and lack of capacity to comply then the absence of enforcement. Basing on this study's conceptual framework compliance's major determinants are sociological, psychological, management and economic factors (Kuperan and Sutinen, 1998, Sutinen et al, 1990, Nielsen 2003, Kuperan and Sutinen, 1999) .For this study sociological and management factors are fundamental as these yielded statistically significant p values.

There is a positive correlation between perceived legitimacy and compliance ($p < 0.05$) and this is so because if street vendors accord higher levels of perceived legitimacy to the council they are more likely to agree with the regulation. Increase in perceived legitimacy results in increase in compliance. Kuperan and Sutinen (1998), noted that individuals comply with regulation that is enacted by agencies they perceive to be legitimate. This is so because individuals will consider the laws appropriate and hence comply with them.

The results indicates that social pressure is significant at 5% level of significance and in the case of street vendors this may be attributed to the fear of what other people around them will say especially if the waste is hazardous or too bulky. As noted by Sutinen et al (1990) sociological factors are critical in inducing or limiting compliance behaviour since there are interdependencies amid those who make a compliance choice. This is in line with previous studies which found out that the regulated individuals seek to earn the consent of others whom they relate to on daily basis (Winter and May, 2001).

Non enforcement of the by-laws is significant at 5% level. There is a negative correlation between non enforcement and compliance mainly because no enforcement results in lower

levels of compliance. Stricter enforcement of the anti-litter regulation in some cases results in high compliance levels.

This is so because monitoring and penalties will deter some individuals from violating. As shown by the results some vendors agreed to violate the regulation because the council does nothing about it meaning enforcement of the rule is quite crucial.

Table 6: Determinants of compliance with requirement to collect waste to disposal sites in event of service provision failure by council

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	0.494	0.436		1.135	0.259
	Perceived legitimacy	0.127	0.072	-0.165	-1.751	0.043*
	Penalty	0.094	0.084	0.106	1.111	0.269
	Detection of violators	-0.04	0.075	-0.051	-0.532	0.596
	Social pressure (what others will say)	0.309	0.107	0.329	2.89	0.005**
	Non-enforcement	0.15	0.105	0.14	1.429	0.156

Capacity to comply	0.138	0.089	0.154	1.554	0.023*
Habit	-0.071	0.095	-0.072	-0.742	0.46
Economic or personal gain	0.019	0.15	0.012	0.124	0.902
Moral obligation	0.182	0.097	-0.244	-1.878	0.063*
Quantity of waste	0.031	0.071	0.045	0.44	0.661
Inconsistency of service	-0.157	0.092	-0.18	-1.698	0.042*
Perceived legitimacy (council's duty to collect waste)	0.192	0.184	0.096	1.042	0.3
Perceive biodegradable waste safe for the environment	0.123	0.155	0.08	0.794	0.429

a. Dependent Variable: Are you always mindful of the requirement to collect waste to disposal sites

$R^2 = 0.390$ * = 10% level of significance ** = 5% level of significance

Source: Fieldwork data 2014

Table 6 shows the determinants of compliance with the requirement to collect waste to disposal sites if the council fail to do so. The results illustrate correlations of compliance and legitimacy, social pressure, moral obligation and inconsistency in waste collection. A positive correlation is noted between compliance and legitimacy indicating that an increase in perceived legitimacy results in a higher level of compliance just like the anti-litter by-law. Social pressure is significant at 5% level of significance. This implies that sociological factors play a pivotal role in compliance s advised by many scholars.

There is a positive correlation between moral obligation and compliance ($p < 0.05$). Individuals with higher stages of moral development are more likely to be compliant because people in this stage wish to keep society functioning and believe that laws are social contracts crucial for society (Kohlberg, 1969). This implies that the higher the moral development of an individual the higher also the level of compliance.

The results illustrate a negative correlation between inconsistency in waste collection and compliance. This signifies that if the council is not reliable in its waste collection schedule compliance will be difficult to attain as dependability will be decreasing. These sentiments are in line with the empirical studies that factor out management factors as some of the major determinants of compliance (Sutinen et al, 1990). Mangundu et al, (2013), notes that local authorities are failing their mandates mainly due to weak management planning. For Glenview this means that failure by the city council to collect waste consistently is reducing the credibility of the enforcement agent resulting in lower levels of perceived legitimacy. As mentioned earlier, lack of legitimacy accorded to management compromise compliance with regulation.

4.5: Descriptives showing respondents' contentment with the state of environment (Objective -3)

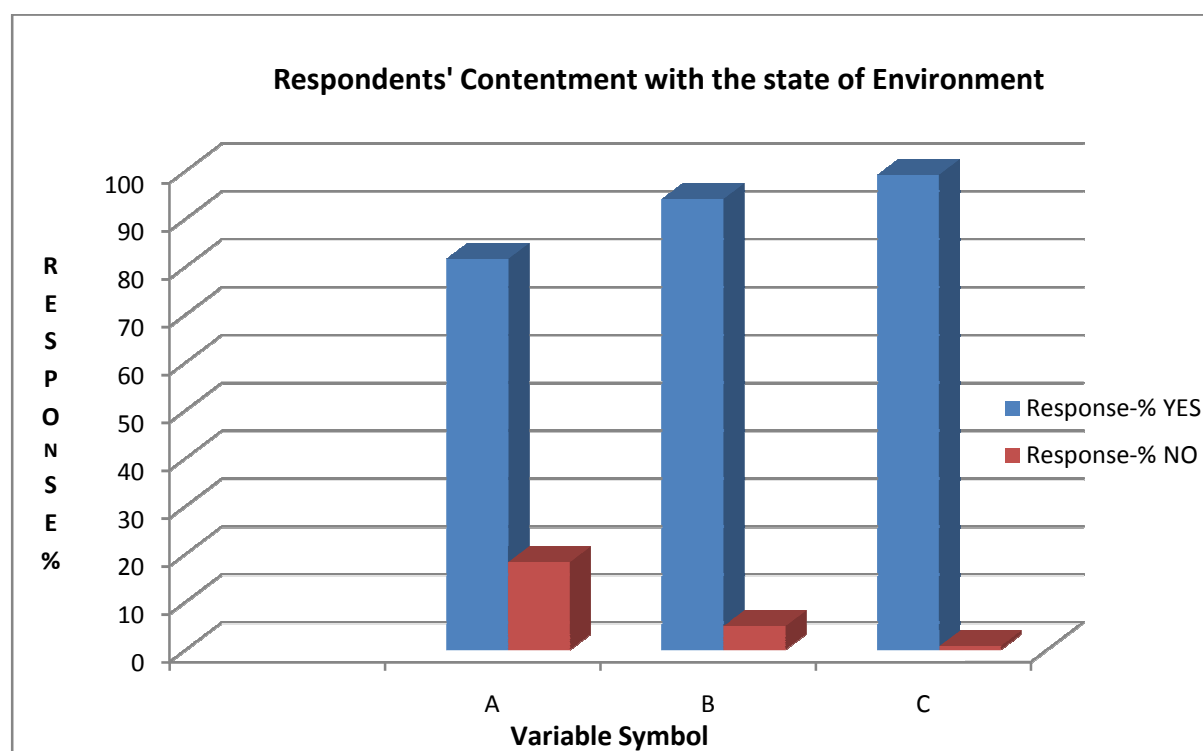
Table 7: Respondents' contentment with the state of the environment

Descriptive Statistics					
	N	Min	Max	Proportion	Std. Deviation
Do you think that if you dispose of waste legally the environment you work in will be much cleaner	120	0	1	0.82	0.389
Do you think that the council should consult you in managing the environment so that you will conform to its rules	120	0	1	0.94	0.235
If the by-laws are conformed to properly will that help in improving environmental sustainability	120	0	1	0.99	0.091

Valid N (list wise)	120				
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Source: Fieldwork data 2014

Figure 6: Respondents' contentment with the state of the environment



Source: Fieldwork data 2014

Key

A- Proportion of respondents who think that if they dispose waste properly their environment will be much cleaner.

B- Proportion of respondents who think that consultation is key to compliance.

C- Proportion of respondents who think that the by-laws are crucial in aiding sustainability.

Most the respondents concur that the environment they work in is highly polluted. Through observation the researcher noted high volumes of wood from carpentry on roadsides, rotten tomatoes and vegetables, plastics, paper, leather, hair, food waste, maize cob waste among others. Some of the street vendors operating in the area near Glenview 1 Furniture Complex work in a filthy and smelly environment. To this regard a larger percentage of the sample indicated that they were not contented with the environment they were working in.

98 of the sampled 120 respondents specify the fact that if all vendors could comply with the regulation the environment they work in will be much cleaner. The proportion of these respondents is 82% showing that most vendors know that disposing waste through legal means protect the environment.

The proportion of respondents who believe that the city council should consult them and work together with them to improve services was 94% with a standard deviation of 0.235. This implies that street vendors yearn for their involvement in solid waste management challenges. Most vendors believes that if consulted on issues this can lead to an increase in the levels of compliance as most vendors will feel involved hence obliged to be compliant. Involvement will also be crucial for the enhanced state of the environment.

Most vendors agreed that these present by-laws if conformed to properly will aid in environmental sustainability as indicated by the proportion of 99% and a standard deviation of 0.091. This indicates that most vendors perceive the importance of having this regulation as it leads to the integrity of the environment.

4.6 Conclusion

This chapter presented the data which was collected from the field through the use of graphs, charts and tables. More women took part in the study and the vendors' ages ranged from 21 to 60 years. Street vending has become a livelihood hence the presence of more household heads in the streets in which most attained a secondary education. The vendors sell different goods like sweets, maputi, sadza, compact discs, drinks and also services like plaiting and haircuts. Through observation, heaps of packed lunch containers, empty bottles, plastics and wood waste were recorded. The first objective which sought to find attitudes and perceptions towards the by-laws was addressed by the findings. Most respondents were not content with the type of service offered by the city fathers. The determinants of compliance from this study were perceived legitimacy, lack of enforcement and monitoring, habit and moral obligation among others. Most respondents indicated that they were not content with the state of the environment they are working on.

CHAPTER FIVE: Summary of findings, conclusions and recommendations

5.0 Introduction

This chapter will present the summary of the findings focusing on each objective, the conclusion and finally the recommendations basing on the whole research.

5.1 Summary of findings

Focusing on the first objective which sought to assess the attitudes and perceptions of Glenview vendors towards the city council as the enforcement agent and the by-laws as rules governing them, the research indicated that the city council is unpopular with the people. The vendors perceive that this enforcement agent is not legitimate hence not competent in delivering services. Most of the people who took part in the research acknowledged that they were aware of the anti-litter by-law and that it was necessary for the protection of the environment. The requirement to collect waste to disposal sites however was considered not fair by some and research indicated that some did not even know about its existence. The findings indicated that the vendors are not satisfied with how the council works in delivering services. Major areas of concern were the lack of consultation or participatory style of management, lack of monitoring and surveillance which lead to non detection of violators. Most vendors indicated that violators get away with their crimes and becomes difficult to maintain a cleaner environment. Since there is no detection of violators penalties therefore fail to carry the deterrent effect they are supposed to instil. However, findings from key informant interviews revealed that the city council is incapable of carrying out these activities because of lack the necessary financial resources and also the fact that the municipal police do not have arresting powers and they have to wait for the ZRP which may not give priority to solid waste regulation violators since they are overwhelmed by other issues.

The second objective sought to find the causes of non-compliance amongst Glenview vendors and the basis for this behaviour was established. Widespread violation of the city council by-

laws were observed in the area mainly because there is limited perceived legitimacy awarded to the enforcement agent. The council is regarded as incompetent and this is causing higher levels of non-compliance amongst the respondents. People are not afraid of the penalties because of limited enforcement and the absence of the penalty's deterrent effect is disastrous for compliance. Insufficient enforcement as presented in the findings is also another determining factor leading to non-compliance. Lack of surveillance and monitoring perpetuate non-compliance as individuals are convinced that the council does nothing to those who violate the rules since the threat and severity of sanctions is very low. Vendors in Glenview also alluded to the fact that they lack the capacity to comply as the area lack proper places to dispose waste. Observation method indicated that the area lacks skip bins which are a necessary central point for the collection of waste. Social pressure and influence also result in non-compliance as most individuals agree to the fact that they throw waste anywhere because that is what everyone around them is doing. A culture of disposing waste illegally have developed in most people, has become a habit and it is another cause of non-compliance mentioned by respondents.

The research provided insights to the fact that another determinant of compliance is the quantity of waste. Vendors with bulky waste like those involved in carpentry and food businesses tend to dispose their waste unsustainably than those whose business produced limited quantities of waste like ones selling airtime or other smaller items. Lower levels of moral obligation also resulted in non-compliance whilst those vendors with higher levels tend to comply with the rules more often. Most people seem to be driven by economic or other personal gains and the field work results prove that these people worry about the survival of their businesses and do not mind where litter is disposed. This is in line with what most scholars say about the rationale characteristic of individuals. Individuals tend to choose actions that maximise their benefit (Kuperan and Sutinen, 1997). Some of the respondents

alleged that their businesses produced biodegradable waste and for them it's not harmful to the environment hence they dispose of it anyhow. Compliance levels for the requirement to collect waste to disposal sites if the council fail to collect waste were very low and mainly because the respondents felt it is the council's duty to do so.

The third and final objective wanted to establish if the respondents are content with the state of the environment they are working in. Most vendors indicated that litter and waste were bad for the environment and that they were operating in a polluted environment. These people also agreed to the fact that if they can conform to the by-laws the environment they work in will be much cleaner and healthier than it is at the moment. However these respondents expressed the view that for the environment to be much healthier there is need for the council to consult and work together with them and become partners in protecting the environment. They put across the point that rules made jointly and co-management resulted in higher compliance levels since the vendors will be involved. Most respondents alluded to the fact that if conformed to properly these by-laws will greatly aid environmental sustainability.

5.2 Conclusions

Compliance levels with the city council regulation have proved to be very low and there is need for improvement. As the study has indicated the vendors perceive that the council is not legitimate and this has disastrous effects on compliance. Perceived legitimacy is low mainly because the council does not consult with the people regarding issues of waste management, does not carry out serious surveillance and monitoring programmes; there is no detection of violators, penalties are not enforced as there are no enforcement measures and the council is not consistent in its service provision.

A number of determinants are responsible for the drop in the levels of compliance with city council by-laws. The study revealed how vendors embark on non-compliance activities due to insufficient enforcement, drive for economic or other personal benefit, habit, social

influence and pressure, limited capacity to comply and low moral obligation levels. The research succeeded in bringing out these factors as they are crucial in the running of the city council.

The research indicated that most people are not content with the environment they are operating in and they agree that something needs to be done. Vendors specifically expressed the need for consultation from the city fathers to attain environmentally sustainable working surroundings. This implies also that if the by-laws are conformed to properly they will aid in maintaining environmental integrity.

These findings are in line with the theoretical base of literature. This is so because previous studies revealed that compliance is determined by sociological, psychological, economic and management factors as shown by the conceptual framework. This study is applicable in solid waste management as the results indicated that sociological factors and management factors are responsible for non-compliance. The fear of what others will say and non-compliance due to the fact that everyone is doing so was very significant for this study. Management loopholes also as advised by the conceptual framework were the other major causes of non-compliance. Economic and psychological factors were also significant but to a lesser extend.

In summation, compliance with solid waste regulation among Glenview vendors is very low. Vendors have a negative attitude towards the by-laws and this has negative effects on compliance. Many factors like lack of surveillance, moral obligation, and legitimacy are responsible for the low compliance levels noted in the area. This signifies that the study is applicable in our own local context.

5.3 Recommendations

The following recommendations are proposed as they aid in boosting compliance levels.

- The development through to the implementation of the rules should be inclusive allowing all stakeholder participation. The findings revealed that lack of consultation results in high non-compliance as also supported by empirical findings that rules which are inclusive are more popular among those managed. This will increase compliance levels because there will be consensus to the dictates of the regulation. The city council, NGOs, CBOs, communities and vendors' associations should have a say in the management as this will help in compliance.
- There is need to enact stiffer penalties for offenders to have a high deterrent effect. Findings from this study indicated that most violators are getting away with it and this encourages more offenders. Penalties should be clear and enforced consistently to acquire its deterrent effect.
- Glenview vendors need to have an association or robust organisations which will represent them and facilitate communication between the association, the government and the private sector. These associations are quite crucial in strengthening the participation of street vendors and the public in general in solid waste management challenges.
- There is need for the registration of street vendors at local level, establish a licensing mechanism and the code of conduct to operate with. Literature expressed the importance of this as it will increase accountability.
- In a bid to increase compliance levels there is a greater need for municipal courts which deal with municipal offenders and to increase the powers of municipal police. This will help in the prosecution of cases faster and help strengthen enforcement measures. Processing cases faster has a deterrent effect on future offenders. The findings revealed that non-compliance is widespread as violators know that the cases are not taken to court.

- Street vendors have negative attitudes towards waste there is need for education to correct attitudes and educate people on the hazards of working in a polluted environments. This will involve sensitizing vendors on environmental health and education.
- There is need of reviewing the existing by-laws to meet the contemporary trends of urban livelihoods through vending, and also to instil the current ISWM plan incorporating reducing, reusing and recycling waste (3Rs). On this regard also the municipality needs to provide facilities which allow separation of waste at its sources. This will involve recognising the contribution street vending is making to livelihoods and the economy and respecting the rights of these workers. Surveys needs to be conducted to establish the nature of vending and the numbers of people who depend on it for survival. The by-laws need to be reviewed to distribute also more ample space for these people. This is because the findings indicated that all these crucial facets are lacking.

5.4 Conclusion

Basing from the earlier mentioned views, this study had a couple of findings. The vendors perceive that the city council is not legitimate hence not competent in delivering services. The basis of non-compliance was established as perceived legitimacy, non enforcement of penalties, lack of monitoring and surveillance among others. The findings from this study led to different conclusions. Compliance with the city council regulations is very low as most people perceive it as not competent. These findings are in line with the theoretical base of literature as compliance is determined by sociological, psychological and economic factors.

REFERENCES

- Achankeng, E. (2003). Globalisation, Urbanisation and Municipal Solid Waste Management in Africa. African Association of Australasia and the Pacific Conference. African on a Global Stage. <http://www.ssn.flinders.edu.au/global>
- Aliaga, M. and Gunderson, B. (2000). *Introduction to Quantitative Research*. Thousand Oaks CA ,Sage Publications.
- Ayatamuno, J.M and Gobo E.A. (2004), “Municipal Solid Waste Management in Port Harcourt, Nigeria” Obstacles and Prospects. Management of Environmental Quality, *An International Journal*, Volume 15 Issue 4, 389-398.
- Bhowik, S. (2005). Street Trading in Asia. Economic and Political Weekly. 2250-2264 <http://wiego.org/sites/wiego.org/files/publications/files/Bhowmik-street-vendors-Asiapdf>.
- Booth, C. Martin, K. and Lankester, T. (2001). *Urban Health and Development: A Practical Manual for Use in Developing Countries*. Oxford. Macmillan
- Braun, V. and Clarke, V. (2006), *Using Thematic Analysis in Psychology. Qualitative Research In Psychology*.
- Chikobvu, D. and Makarati, F. (2011). The Challenges of Solid Waste Disposal in Rapidly Urbanizing Cities: A Case of Highfield Suburb in Harare Zimbabwe. *Journal of Sustainable Development in Africa* Volume 13(7) 520-5509.
- Chirisa, I. (2013), Solid Waste, the ‘Throw Away Culture’ and Livelihoods; Problems and Prospects in Harare Zimbabwe. *Journal of Environmental Science and Water Resources*. Volume 2(1), 001-008.

Cointreau, S. (1982). Environmental Management of Urban Solid Wastes in Developing Countries. A Project Guide. Washington D.C. World Bank Paper 5.

Crawford, I. (1990), Marketing Research, Harare, Centre for Agriculture Marketing Trade for East and Southern Africa.

Denzin N.K, and Lincoln Y.S, (2005), *Handbook of Qualitative Research (3rd eds)*, Thousand Oaks, CA, Sage Publications.

DFID (Department of International Development).(1999) Research Development and Design of a Simple Solid Partner Country. Intermediate Technology Consultants Limited (ITC) and Schumacher Centre for Technology and Development London.

Dube D and Chirisa I. (2012), The Informal City: Assessing its Scope, Variants and Direction in Harare, Zimbabwe. *Global Advanced Research Journal of Geography and Regional Planning* 1(1), 016-025

Faul F, Erdfelder E, Lang A.G and Buchner A. (2007), G* Power 3: A Flexible Statistical Power Analysis Programme for the Social, Behavioural and Biomedical Science.

Government of Zimbabwe, (1998b). Zimbabwe National Water Authority Act (Act 11 of 1998)

Government of Zimbabwe, (2010), Report of the Portfolio Committee on Local Government, Rural and Urban Development on the State of Service Delivery by the Municipalities of Harare, Chitungwiza and Norton (unpublished).

Honneland, G.(1999) A model of Compliance in Fisheries; Theoretical Foundations and Practical Application. *Ocean and Coastal Management* 699-716

John, D.(eds), (1999), *Cleaner Productions and Consumptions: Challenges and Opportunities in East and Southern Africa*. Harare. Weaver Press.

Johnson H and Wilson G, (2000), Institutional Sustainability, 'community' and Solid Waste Management in Zimbabwe. Development Policy and Practice Discipline, Centre for Complexities and Change. *Futures* 32, 301-316.

Kamunyori, S.W. (2007) A Growing Space for Dialogue; The Case of Street Vending in Nairobi Central District (Forthcoming).

Khan I.H. (2003), *Textbook of Solid Waste Management*, CBS Publishers and Distributors , Calcutta.

Kohlberg, L. (1984), "Stage and Sequence; The Cognitive Developmental Approach to Socialization In the Handbook of Socialization Theory and Research, (ed) David A Goglin; Rand McNally

Kotari, C.R. (2004), *Research Methodology; Methods and Techniques*, New Age International. New Delhi.

Kuperan, K. (1994) A Framework for Analysing Compliance with Regulations. *Malasian Journal of Management Science* 3(1). 63-85

Kuperan, K. and Sutinen, J.G. (1998), Blue Water Crime, Deterrence, Legitimacy and Compliance in Fisheries. *Law and Society Association*

Makwara E, C and Magudu S (2011), Confronting the Reckless Gambling with People's Lives and Health. Urban Solid Waste Management in Zimbabwe. *European Journal of Sustainable Development*, 2(1): 67-98

- Mangizvo R,V. (2008), An Overview of the Management Practices at Solid Waste Disposal Sites in African Cities and Towns. *Journal of Sustainable Development in Africa*, 12(7). Pennsylvania, Clarion University of Pennsylvania.
- Mangundu A, Makura, E,S,M, Mangundu M and Tapera R, (2013), The Importance of Integrated Solid Waste Management in Independent Zimbabwe: The Case of Glenview Area 8, Harare. *Global Journal of Biology, Agriculture and Health Sciences* Volume 2(3) 85-92
- Maseva, C. (2005) A Review of Legislative and Policy Framework for Waste Management in Zimbabwe with Special Reference to Harare, Chitungwiza Municipality and Epworth Local Board. Report Prepared for Practical Action Southern Africa.
- Mckinney K, (2011), *Quantitative Anlysis and Reporting. Telling a Story with Numbers*. Assessement Institute Chicago.
- Milne, J. (1997), *Statistical Methods in Land Use and Environmental Science*, London, Aberdeen University.
- Mitullah W.V. (2003), Street Vending in African Cities; A Synthesis of Empirical Findings from Kenya, Cote d’vore, Ghana, Zimbabwe, Uganda and SouthAfrica. World Development Report.
- Nielsen, J.R. (2003), An Analytical Framework for Studying Compliance and Legitimacy in Fisheries Management. *Elsevier Science Limited* 425-432.
- Nielsen, J.R. and Mathiesen, C. (2003), Important factors influencing rule compliance, lessons from Denmark. *Marine Policy* 409- 416.
- Njaya, T. (2014), Challenges of Negotiating Sectorial Governance of Street Vending Sector in Harare Metropolitan, Zimbabwe. *Asian Journal of Economics Modelling*, 2(2) 69-84.

Nyikahadzoi, K. and Songore, N. (1999), Introducing Co-management in Lake Kariba Inshore Fisheries; Progress, Opportunities and Constraints.

Practical Action (2006), Proceedings of the Emerging Issues in Urban Waste Management Workshop. Practical Action Southern Africa, Newlands Harare

Robinson, (1986) in, Ayatamuno J.M and Gobo E.A. (2004), “Municipal Solid Waste Management in Port Harcourt, Nigeria” Obstacles and Prospects. Management of Environmental Quality : *An International Journal*, Volume 15 Issue 4, 389-398.

Roever S. (2005), Street Trading in Latin America; Demographic Trends, Legal Issues and Vending Organisations in 6 Cities, Wiego Urban –Policies Programme.

Sirakaya, E. (1997), Attitudinal Compliance with Ecotourism guidelines. *Annals of Tourism Research*. 919-950.

Springate, B, Oliver A.D, and Darwall, W.R.T, (2009), *An Integrated Wetland Assessment Toolkit. A Guide to Good Practice*, Gland, IUCN and Cambridge.

Srinivas, H. (2003), Urban Waste Management Issues.

Susilowati, I. (2003), An Assessment on Fisher’s Compliance Behaviour in Pemalang Regency, Central Java- India. *Journal of Coastal Development* 115-120.

Sutinen, J.G. and Gauvin, J.R (1989) in Sutinen, J.G. Riesser, A. and Gauvin, J.R. (1990), Measuring and Explaining Noncompliance in Federally Managed Fisheries. *Ocean Development and International Law*, 335-372.

Sutinen, J.G. and Kuperan, K. (1999), A Socioeconomic Theory of Regulatory Compliance, *International Journal of Social Economics*, Volume 26, 173-193.

Sutinen, J.G. Riesser, A. and Gauvin, J.R. (1990), Measuring and Explaining Noncompliance in Federally Managed Fisheries. *Ocean Development and International Law*, 335-372.

TARSC (2010), Assessment of Solid Waste Management in 3 local Authorities in Zimbabwe. Report of a Community Based Assessment with Civic Forum on Housing, Oxfarm, Canada.
<http://www.tarsc.org/>

Tchobanoglous, G. Theisen, V, Vigil, S. (1993), *Integrated Solid Waste Management. Engineering Principles and Management Issues*, New York, Mc Grow Hill Publishers

Tevera D and Moyo S eds, (2000), *Environmental Security in Southern Africa*. Harare Sapes.

Tevera- Mubvani Associates (1995), Draft Report on Zimbabwe Urban Solid Waste Management for the Ministry of Local Government, Rural and Urban Development.

Tevera, D. Conyers D, Matobvu G. (eds) (2002), *The Challenges and New Innovations in Urban Solid Waste Management. Issues and Policy Options. Case Studies of Tanzania, Zambia and Zimbabwe*. International Development Research Centre.

Tevera, D. Zinyama L, and Cumming S. eds (1993), *Harare; The Growth and Problems of the City*. University of Zimbabwe Publications Harare.

Toffler (1970) in Chirisa, I. (2013), Solid Waste, the 'Throw Away Culture' and Livelihoods; Problems and Prospects in Harare Zimbabwe. *Journal of Environmental Science and Water Resources*. Volume 2(1), 001-008.

Tyler, T.R. (1990), *Why People Obey the Law*. New Haven, Yale University Press

UNEP (2009), Developing Integrated Solid Waste Management Plan, Training Manual Volume 4, Shiga/ Osaka, UNEP.

Viswanathan K.K. (2003), Fisheries Co-management Policy Brief: Findings from a Worldwide Study. *Worldfish*.1696

Viswanathan, K.K. (1994), Enforcement and Compliance with Regulations in the Malaysian Fisheries.

Viswanathan, K.K.Abdullah, N.M.R, Susilowati, I and Ticao, C (1997), Enforcement and Compliance with Fisheries Regulation in Malaysia, Indonesia and the Phillipines. *Proceedings of the International Workshop on Fisheries Co-management*. 1-25

WHO (1996), Guides for Municipal Solid Waste Management in Pacific Countries. Health Islands Document Series .No 6 World Health Organisation West Pacific Region

Winter, S.C and May, P.J. (2001), Motivations for Compliance with Environmental Regulations.

[www,gdrc.org/uem/waste/html](http://www.gdrc.org/uem/waste/html)

Young, O.R. (1979), *Compliance and Public Authority*. Baltimore; Johns Hopkins University Press.

Zimstat (2012), Zimbabwe 2012 Census Preliminary Report, Harare, Zimbabwe National Statistics Agency.

APPENDICES

Appendix 1: Street vendor questionnaire

Self introduction and purpose of study

My name is Tsitsi Caroline Mtema doing Masters in Social Ecology at the University of Zimbabwe. I am carrying out a study to fulfil the requirements of my masters' programme and I would like to interview you for some minutes. All what you are going to say will be used for academic purposes only and your identity will not be disclosed. If you feel you need to withdraw at any time during the interview you are absolutely free to do so. The information you provide will be crucial in informing sustainable solid waste management in the country.

SURVEY BASED ON COMPLIANCE WITH CITY COUNCIL BY-LAWS GOVERNING GLENVIEW STREET VENDORS

Name of interviewer	
Date of interview	
Questionnaire number	

SECTION A: DEMOGRAPHIC AND SOCIO-ECONOMIC DATA

1. Gender of respondent	0= male 1= female
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2. Age of respondent	
3. Marital status	1=single 2=married 3=widowed 4=divorced 5=separated 6=specify other
4. Highest level of qualification	1=no formal education, 2=primary education, 3= secondary education, 4= tertiary education 5= vocational training 6=specify other
5. Household size	
6. Household head	0= No 1=Yes
7. How much the average income you get from your business?	
8. How long have you been operating your business from this area?	
9. What form of waste does your business generate?	0= biodegradable 1=non biodegradable
10. Estimate the amount of waste your business generates a day (per 20l container)	

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SECTION B: ATTITUDES AND PERCEPTIONS

<p>11. Do you regard the following by-laws as fair and just?</p> <p>a) anti-litter by-law</p> <p>b)requirement of any owner or occupier of any premises which no collection services has been provided to collect and deposit all waste accumulated at a waste disposal site.</p>	<p>0= No 1= Yes</p> <p>0= No 1= Yes</p>
<p>12. Is the enforcement agency competent in implementing the by-laws?</p>	<p>0= No 1=Yes</p>
<p>13. Was there some form of consultation when the by-laws were made or during their implementation?</p>	<p>0=No 1= Yes</p>
<p>14. Are the penalties for littering severe enough to discourage violators?</p>	<p>0= No 1= Yes</p>
<p>15. Are the penalties for not collecting waste to disposal sites severe enough to discourage violators?</p>	<p>0=No 1= Yes</p>

16. Does the council carry out surveillance or monitoring programmes?	0=No 1=Yes
17. Are violators quickly detected or most get away with it?	0= No 1= Yes
18. In your own opinion is the council right in imposing this regulation?	0= No 1= Yes
19. Do you think the principal reason for these by-laws is environmental protection?	0=No 1= Yes

SECTION C: DETERMINANTS OF COMPLIANCE

20. Do you throw litter because you think the council is not effective in doing its work?	0= Never 1= rarely 2= occasionally 3= always
21. Do you throw litter and waste in recommended areas because are afraid of penalty involved?	0= Never 1= rarely 2= occasionally 3= always

22. Do you throw litter and waste in recommended areas because are afraid of being seen by the council staff members?	0= Never 1= rarely 2= occasionally 3= always
23. Do you throw litter and waste in recommended areas because you are afraid what people around you will say?	0= Never 1= rarely 2= occasionally 3= always
24. Do you abandon waste illegally because that is what everyone is doing?	0= Never 1= rarely 2= occasionally 3= always
25. Do you throw litter anywhere because the council does nothing about it?	0= Never 1= rarely 2= occasionally 3= always
26. Do you throw litter anywhere because you don't have proper places to deposit waste?	0= Never 1= rarely 2= occasionally 3= always

27. Given a situation where you deposit all litter in officially authorized places and the city council fail to collect it and its piling up	0= Never 1= rarely 2= occasionally 3= always
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will you resort to abandoning the overload in open spaces?	
28. Given the above mentioned situation do you sometimes resort to burning of waste?	0= Never 1= rarely 2= occasionally 3= always
29. Do you dump the waste you generate from your business on open spaces because of its quantity whether little or bulk?	0= Never 1= rarely 2= occasionally 3= always
30. Do you place waste anywhere because the council is not consistent in following its collection schedule?	0= Never 1= rarely 2= occasionally 3= always
31. Do you fail to collect waste to disposal sites because you feel its the council duty to do so?	0=No 1= Yes
32. Do you place waste from your business because you think its biodegradable therefore not harmful to the environment?	0=No 1= Yes

SECTION D: STATE OF THE ENVIRONMENT

33. Are you happy with the state of the environment you are living or working in?	0=No 1=Yes
34. Do you think the council should consult and work together with you to manage the environment?	0=No 1= Yes
35. In your own opinion, if the by-laws are conformed to properly will they manage to aid in environmental sustainability?	0= No 1= Yes
36. Are the by-laws sufficient in ensuring environmental protection?	0= No 1= Yes

Appendix 2: Key informant interview guide- City of Harare

1. What do you think are the main causes of non-compliance?
2. What are the penalties for violating the by-laws?
3. The study revealed that there is very limited monitoring and surveillance. What are the main causes?
4. Are violators detected and prosecuted in time?
5. Are you willing as council to work together with people to allow bottom up techniques?
6. Given our Zimbabwean context, what can be done to ensure compliance with the by-laws?

Appendix 3: Anti-litter by-law

Statutory Instrument 85 of 1981.

[CAP. 214

Salisbury (Anti-litter) By-laws, 1981

It is hereby notified that the Minister of Local Government and Housing has, in terms of section 180 of the Urban Councils Act [Chapter 214], approved the following by-laws made by the City Council of Salisbury:—

Title

1. These by-laws may be cited as the Salisbury (Anti-litter) By-laws, 1981.

Application

2. These by-laws shall apply to the council area.

Interpretation

3. In these by-laws—

“council” means the City Council of Salisbury;

“litter” includes any containers, wrappings, cartons, cigarette-packets, paper, vegetable matter, garden waste, hedge-clippings, dead animals, ash, tins, rubbish, bricks, stone, rubble, soil and any other matter or substance which is unwholesome, offensive or untidy.

“public place” includes any bridge, enclosure, foot-path, garden, park, garage, car-park, open space, pavement, road, service-lane, side-walk, square, subway, street, mall or undeveloped land, or any other area, vested in or controlled by the council, to which the public, or any section of the public, has access.

Prohibition of the deposit of litter

4. No person shall deposit or abandon, or cause or permit to be deposited or abandoned, any litter in a public place, except in a receptacle especially provided for the receipt of such litter.

Supplement to the Zimbabwean Government Gazette dated the 27th February, 1981. Printed by the Government Printer, Salisbury.

Appendix 4: Antilitter fines

Telegrams: "YULELOGS"
Telephone: 703081

Our Ref: 15/348 Town Clerk
Your Ref: 15/348 Town Clerk

15/348

TOWN CLERK

CHIEF MAGISTRATE'S OFFICE
P.O. BOX 8065
CAUSEWAY
HARARE
ZIMBABWE

11th April 1990


Town Clerks Department
Town House
Box 990
HARARE

re: ANTI-LITTER BY-LAWS: DEPOSIT FINES

This office, in consultation with the office of the Director of Public Prosecutions, has approved the following deposit fines in respect of contraventions of section (4) of the Harare (Anti-Litter) By-Laws, 1981:

<u>Offence</u>	<u>Fine</u>
(a) Street littering (bus tickets, food wrappers, cigarette packets etc.)	\$10
(o) Littering at picnic spots, lay-byes, parks and open spaces	\$10
(c) Rubbish from a vehicle	\$10,00
(d) Dumping of garden refuse or builders rubble	\$50,00
(e) Dumping of dead animals, filth or substance which is unwholesome, offensive or untidy.	\$100,00

I should further advise that whilst we were inclined to consider imposing slightly higher deposit fines for the above offences, we found no reason to depart from the suggested fines, though these would appear to be on the low side.


P. GARWE
CHIEF MAGISTRATE
PG/az

c.c. The Senior Public Prosecutor, Harare
The Provincial Magistrate, Harare
The Commissioner of Police, Harare.

Appendix 5: Requirement to collect waste to disposal sites

HARARE (WASTE MANAGEMENT) BY-LAWS - 1979.

- 4 -

Removal of domestic waste and provision of standard waste-receptacles"

(1) The council may-

(a) supply to any premises a service for the removal of domestic waste; and

(b) require the owner or occupier of any premises to which no such service is supplied to remove all domestic waste which accumulates on his premises and deposit such waste at a waste-disposal site.

(2) (a) the Council shall provide to all residential premises to which a service for the removal of domestic waste is supplied a standard waste receptacle;

(b) the owners of premises other than those specified in paragraph (a) above shall provide the standard waste-receptacles required in terms of subsection (3) for the temporary storage of all domestic refuse accumulated or produced at such premises.

(3) The number and type of waste-receptacles to be provided by the owner of the premises specified in paragraph (b) of subsection (2), shall be as determined by-

(a) the medical officer of health in the case of premises where food is prepared or handled other than for purely domestic purposes; and

(b) the director of works, in the case of any other premises."

Use of waste-receptacles

(1) The owner of any premises to which the council supplies a service for the removal of domestic waste shall reserve, on such premises, a suitable area, or suitable areas, of sufficient size for the accommodation of standard waste - receptacles.

(2) Subject to the provisions of subsection (2) of section 6, the occupier of any premises referred to in subsection (1) shall-

(a) deposit, or cause to be deposited, all domestic waste which accumulates on such premises in a standard waste-receptacle; and

(b) on the day on which domestic waste is to be removed in terms of subsection (1) of section 6, place, or cause to be placed, any standard waste-receptacle which contains such waste at the road side adjacent to the premises or at such other convenient point as has been arranged with an authorized official, and as soon as practicable after such receptacle has been emptied, return it to the area reserved in terms of subsection (1).

Council's service for the removal of domestic waste

6 (1) The council shall, itself or through its contractors, once a week, or at such more frequent interval as it may determine from time to time, remove all domestic waste from standard waste-receptacles which have been placed as required by subsection (2) of section 5 and deposit such waste at a waste-disposal site:

Provided that, in the case of hotels, clubs, hospitals, nursing-homes and those premises specified in the Second Schedule to the Harare (Licensed Premises) By-laws, 1975, published in Harare Government Notice 810 of 1975, domestic waste shall be removed daily unless the medical officer of health certifies in respect of any particular premises that such daily removal is not necessary.

Cont/.....